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The Epistemology of St. Thomas
Aquinas with Special Reference to
Summa Theologiae 1a q84

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ABSTRACT

Attempts by several commentators to map categories from contemporary epistemology onto Aquinas' theory of knowledge, and their attempts to give an account of his theory of perceptual knowledge constitute the background to this thesis.

In the opening chapter we outline Aquinas' theory of knowledge. We see that it is a complex theory, dealing not only with human knowledge, but also with divine and angelic knowledge. We note Aquinas' application of the doctrine of analogy to the concept of knowledge. Despite the radical differences between the Creator's knowledge and that of His creatures there are common elements: the grasp of being as true and the assimilation of the knower to the thing known. In the case of angelic knowledge we note its innateness and immediacy. In our analysis of human knowledge we see the consequences of what Aquinas refers to as the dimness of the human intellect, both in terms of how humans know and what they can know. In particular we highlight the fragmented nature of human knowledge, noting the absence of any mention of perceptual knowledge in Aquinas' account of human knowledge.

In chapter two we sketch the various contemporary epistemological categories that philosophers have sought to map onto Aquinas' epistemology. Pollock's theory of Direct Realism is sketched as an example of internalism. Foundationalism is discussed with reference to Chisholm. Two examples of externalism and reliabilism are given: Nozick's tracking and Goldman's reliabilism. We also discuss the foundationalist externalism of Plantinga. We then outline how these various labels have been applied to Aquinas' theory of knowledge. We begin with MacDonald's foundationalist and internalist interpretation, noting his description of perceptual knowledge as secondary *scientia*. We then consider Ross' attempt to describe perceptual knowledge in terms of faith. In contrast to these we describe Stump's externalist reading of Aquinas, noting that she finds support in the work of Norman Kretzmann.

In chapter three we offer an analysis of Aquinas' account of perceptual knowledge. We argue that judgments of perceptual knowledge consist of a metaphysical and a psychological component. Discussion of the metaphysical component acknowledges the importance of Aquinas' metaphysical realism for his epistemology: the grasp of being as the archimedean point of all knowledge. We examine the role of the senses. Our examination of the psychological component, the intellectual processes involved in judgments, uses material by Joseph McDermott as a catalyst. This allows us to address issues surrounding the grasp of quiddities and the first act of the intellect. We consider the likeness which Aquinas says exists between the intentional and natural existence of forms, discussing the intellect's grasp of the truth before proposing an interpretation of Aquinas' account of perceptual knowledge. We show the complexity of Aquinas' theory of perceptual knowledge. We propose that under the broad heading of perceptual knowledge, some judgments will be certain and infallible. These are properly called 'knowledge'. Other judgments will lack certainty and infallibility, but for the sake of expediency we call them 'knowledge'. This introduces defeasibility into perceptual knowledge. We notice a strong parallel to Alvin Plantinga's account of perceptual knowledge. We admit that there are internalist and foundationalist elements in Aquinas' epistemology. However, we find two major reasons for disagreeing with MacDonald's interpretation.

Scientia and its relationship to perceptual knowledge is addressed in chapter four. We begin by outlining Stump and MacDonald's differing accounts of *scientia*. We then analyse the relationship between *scientia* and perceptual knowledge by focusing on perceptual knowledge's role in the formation of *scientia*'s principles. We see the necessity and importance of perceptual knowledge in the enterprise of *scientia*. Our analysis also allows us to draw conclusions regarding Stump's and MacDonald's differing interpretations.

In the final chapter we set out three conclusions concerning the knowledge of which ST1a q84 speaks, our knowledge of the material world. Two focus on perceptual knowledge in Aquinas' account of human epistemology. The third conclusion focuses on the epistemic naturalism of ST 1a q84.

This work does several things ignored by other recent works on the same topic: It acknowledges the uniqueness and complexity of Aquinas' epistemology. Acknowledging his views on the fragmented nature of human epistemology it gives an account of Aquinas' theory of perceptual knowledge which does not describe it in terms of another kind of human knowledge. It adjudicates between the attempted mappings by contemporary scholars. Finally, it explores the relationship between perceptual knowledge and *scientia*.

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Abbreviations

The works of Aquinas which are cited in this thesis are abbreviated as follows:

<i>De Anima.</i>	<i>D.A.</i>
<i>De Ente et Essentia.</i>	<i>EEE</i>
<i>De Spiritualibus Creaturis.</i>	<i>DSC</i>
<i>De Virtutibus in Communi.</i>	<i>De Virt.</i>
<i>Expositio Super Librum Boethii De Trinitate.</i>	<i>De Trinitate</i>
<i>In Aristotelis Librum De Anima Commentarium</i>	<i>In D. A.</i>
<i>In Metaphysicam Aristotelis Commentaria.</i>	<i>In Meta.</i>
<i>Quaestiones Disputatae De Veritate.</i>	<i>DV</i>
<i>Sententia Super Posteriora Analytica.</i>	<i>In P. A.</i>
<i>Sententia Super Physicam</i>	<i>In Phy.</i>
<i>Summa Contra Gentiles.</i>	<i>SCG</i>
<i>Summa Theologiae.</i>	<i>ST</i>

References to the Thomistic corpus will be given in the following ways:

ST 1a q84 a1c. This should be read as the first part of the *Summa Theologiae*, question 84, the main part of article one. References to *DV* will also be given in this way.

ST 1a q84 a1 ad2. This should be read as Aquinas' response to the second point of the *Summa Theologiae*, question 84, article one.

In P. A. II 14. This kind of nomenclature will be used for citations taken from *In P. A.*, *SCG*, *In Meta*, and *In D. A.* The example given should be read as *The Commentary on the Posterior Analytics*, book 2, chapter *lectio* 14. Occasionally, a third number will be given as in *SCG* I. 36. 2. This last number refers to a particular section of a chapter.

Introduction

Imagine the confusion if two political commentators appeared on *Newsnight* and, in a discussion of the Prime Minister's political beliefs, one described him as a radical free market capitalist while the other described him as an ardent, nationalising socialist. Imagine further, if you will, the incredulity, not to say increasing confusion and hubris, of Paxman, as both commentators not only fail to challenge the other's assertions or arguments, but choose instead to pat each other on the back for the help they have given one another in shaping their respective theories.

It sounds a bizarre scenario. Yet something akin to it happened, not in a television studio or contemporary politics, but in epistemology. In recent years there has been a renewed interest in the philosophy of St. Thomas Aquinas. Several philosophers, in an effort to understand the epistemology of St. Thomas, have sought to apply the categories of contemporary epistemology to the epistemology of Aquinas. Perhaps not surprisingly, given the 700 year epistemological gap and the complexity of Aquinas' theory different commentators have seen it as being an example of different epistemological positions. What is surprising, not to say shocking, is that within the space of a couple of years radically different, and in some instances diametrically opposed, interpretations of Aquinas' epistemology have been offered; yet none of the commentators involved chose to respond to interpretations contrary to their own. Instead they patted one another's backs for help given. So Eleonore Stump concluded her 1992 paper "Aquinas on the Foundations of Knowledge" with a word of thanks to Scott MacDonald.¹ In this paper she described Aquinas' epistemology as reliabilist and externalist as well as outlining what she considered to be the correct understanding of *scientia*, Aquinas' theory of science. A year later in his article "Theory of Knowledge", for a book

¹ Stump 1992, page 158

co-edited by Stump, Scott MacDonald offered his interpretation that Aquinas' theory of knowledge is internalist and foundationalist. Moreover, he also gave an account of *scientia*, different to that offered by Stump. The only reference he made to the philosopher who offered such a radically different, and some might say contradictory interpretation to his own, was an expression of gratitude to her for comments on the draft of his paper.² They are only two philosophers; others, as we will see, have offered their own interpretations of Aquinas' epistemology. Like Stump and MacDonald they generally do not respond to interpretations different to their own.

It is the kind of scenario that conspiracy theorists love. However, this thesis does not intend to explore evidence of a conspiracy. Instead it intends to explore Aquinas' epistemology. Its aim is to analyse Aquinas' theory of knowledge, in particular his theory of our knowledge of the material world and its place within human epistemology: the kind of knowledge which Aquinas begins to discuss in *ST* 1a q84. As part of this analysis we will clear the air and decide which of the assorted contemporary interpretations are more accurate. In our opening chapter we give a broad sweep of Aquinas' epistemology. We see that his epistemological theory deals not only with humans, but also with God and the angels. We look at his complex epistemology, noting his analogical use of 'knowledge': 'knowledge' as it is predicated of God, the angels and humanity. We look in detail at the various factors and processes pertinent to human knowledge. Having outlined his epistemology's complexity and radical difference to post Cartesian epistemologies, in the second chapter we sketch the attempts of Stump, MacDonald and others to describe Aquinas' account of human epistemology. To give a flavour of the categories that these philosophers employ this chapter opens with a sketch of the various epistemological positions used by them. Some of the interpretations offered by these commentators attempt to give an account of Aquinas' theory of human perceptual knowledge. In the third chapter we offer our own account of Aquinas' theory of perceptual knowledge by paying close attention to the components involved in the judgments constitutive of perceptual knowledge. As part of this analysis we indicate which of the different interpretations comes closest to correctly describing this aspect of Aquinas' epistemology. Another recurring feature of interpretations of Aquinas' theory is a focus on *scientia*. In chapter four we look at *scientia* and its relationship to perceptual knowledge. In the final chapter we draw general conclusions regarding Aquinas' theory of human knowledge which emerge from our discussion, as well as offering what we consider to be the only feasible mapping of a contemporary epistemological theory onto the epistemology of St. Thomas.

² MacDonald 1993, page 195

1. Aquinas on Knowledge

And thus I very clearly see that the certitude and truth of all science depends on the knowledge alone of the true God, in as much that, before I knew him, I could have no perfect knowledge of any other thing.

René Descartes: *Fifth Meditation*.¹

To know a proposition p is to know that it is true. But you cannot know that p is true unless it is true.

Alvin Goldman: *Epistemology and Cognition*.²

Knowledge is a particular way of being connected to the world, having a specific real factual connection to the world: tracking it.

Robert Nozick: *Philosophical Explanations*.³

The above authors have different theories regarding what does and does not constitute knowledge. For Descartes knowledge was linked to what could be clearly and distinctly perceived to be true. For Goldman, a person can claim to know a proposition p if and only if the claim is the result of some cognitively reliable process; and for Nozick to know is to have a belief which tracks the truth. There are, of course, many other theories of knowledge. Within the multitude of post-Cartesian theories that have been proposed one aspect is, however, constant. For each of them 'knowledge' is used univocally. As L. M. Regis notes:

During the last three centuries Western thought has tended constantly toward unifying the meaning of knowledge. According to this trend, the word should not

1. Descartes 1992, page 116.

2 Goldman 1986, page 42.

3 Nozick 1981, page 178.

have several meanings.⁴

Thus in Goldman's theory, knowledge is the result of a reliable belief forming mechanism. The term 'knowledge' will always be used univocally. It will never be applied in an analogical way. Distinct from this issue of analogical use another remark can be made about contemporary theories. It is a remark which is made at the risk of pre-empting our discussion: as long as knowledge satisfies whatever epistemological criteria is used, say for example, Goldman's reliability criterion, it does not matter whether the object of knowledge is a piece of scientific knowledge, such as a geometrical theorem, or a piece of perceptual knowledge such as that the cat is on the mat. Both are labelled 'knowledge'. Aquinas does not have a similar conception of knowledge. For a start he says that human knowledge exists in a state of division and multiplicity.⁵ He speaks of different types of human knowledge, each differentiated by their object:

In man different objects of knowledge imply different kinds of knowledge: in knowing principles he is said to have 'understanding', in knowing conclusions 'science', in knowing the highest cause 'wisdom', in knowing human actions 'counsel', or prudence. But all these things God knows by one simple knowledge.....⁶

Neither does he have a univocal concept of knowledge. As Regis puts it:

The ancient philosophers had a much more flexible and human method; instead of surgically mutilating man's cognitive powers, they distinguished in order to unite. They invented theories of formal objects and of analogy which safeguarded both the diversity of the types of knowledge and the unity of meaning of the word knowledge, a unity without which the word becomes unintelligible.⁷

It is debatable whether one would describe Aquinas as an 'ancient philosopher'. Nonetheless, Regis outlines an understanding and use of the word 'knowledge' that fits squarely with that of Aquinas. For St. Thomas, as we shall see, the concept 'knowledge' is used analogically.

The significance of these two aspects of Aquinas' epistemology: the divided and multiple nature of human knowledge and the analogical use of the term 'knowledge' seems to have been lost, or at best under emphasised, by many of today's Thomistic interpreters. Rarely is his account of the multiple nature of human knowledge given adequate treatment. Moreover, the analogical use of the term 'knowledge' is virtually ignored. It appears that the most common, contemporary way to look at the epistemology of St. Thomas is through 'univocally coloured' spectacles focussing solely on human knowledge and ignoring the

⁴ Regis 1959, page 151.

⁵ ST 1a q14 a1 ad2.

⁶ *ibid.* Homo autem secundum diversa cognita habet diversas cognitiones: nam secundum quod cognoscit principia, dicitur habere intelligentiam; scientiam vero, secundum quod cognoscit conclusiones; sapientiam, secundum quod cognoscit causam altissam; consilium vel prudentiam secundum quod cognoscit agibilia. Sed haec omnia Deus una simplici cognitione cognoscit.....

⁷ Regis 1959, page 152

way ‘knowledge’ is predicated of God and the angels. This chapter will initially focus on Aquinas’ analogical understanding and use of knowledge. It will explore the various ways in which Aquinas uses this term. We will see that ‘knowledge’ is used in such an analogical way that this one term is used of beings as diverse as God, angels and humans. We will begin by considering what Aquinas means by using a term analogically. Then we will move on to look at how ‘knowledge’ is used of God and the angels before giving a more detailed treatment of its divided and multiple condition in human intellectual activity. This will allow us to define terms such as *scientia* and perceptual knowledge more clearly, before moving on to consider the implications of Aquinas’ discussion in question 84 of the *Prima Pars* of the *Summa Theologiae*.⁸

a. Analogy

In *Analogy and Philosophical Language* David Burrell makes a remark which we ought to heed at the outset of our discussion:

Aquinas offers no theory of analogy. He does not provide a method whereby one can be sure to speak responsibly of God.⁹

This remark is important for three reasons. Firstly, Aquinas does not offer a systematic treatment of analogy. This task was left to Cardinal Cajetan and others. However, in several places Aquinas does speak about analogical usage. This takes us to the second reason. When he does speak about analogy Aquinas often does so in the context of theological language. Obviously, there is more to analogy than our ability to apply terms to both God and creatures. Nonetheless, given that our primary interest in this section is to draw out the implications of an analogical use of knowledge, and given that Aquinas does treat knowledge as an analogical concept applicable to God and his creatures, this theological context of analogy is a good place to start. Thirdly, as an Aristotelian, Aquinas holds that all our knowledge finds its origins in what we can sense. Our knowledge of God is no different. Our knowledge of God begins from what we know and experience in this world: we know of God’s attributes from what we can know of his creatures.¹⁰ So, for example, he writes :

Because we know and name God from creatures, the names we attribute to God signify what belongs to material creatures of which the knowledge is natural to us.¹¹

⁸ Another way to have approached the issue would have been to begin with with what we know, human knowledge, then look at what disembodied knowledge, angelic knowledge, must be like, and then finally address the question of divine knowledge. Here we follow the structure of the *Summa Theologiae* by looking at divine knowledge, then angelic and human knowledge.

⁹ Burrell 1973, page 170

¹⁰ ST 1a q13 a3c

¹¹ ST 1a q13 a1 ad2 Ad secundum dicendum quod quia ex creaturis in Dei cognitionem venimus, et ex ipsis eum nominamus; nomina quae Deo tribuimus, hoc modo significat secundum quod competit creaturis materialibus, quarum cognitio est nobis connaturalis.

For these names express God, so far as our intellects know him. Now since our intellect knows God from creatures, it knows him as far as creatures represent him.¹²

So we can say of God that he is good, primarily because we know what goodness is from creatures.

This was explained above in treating of the divine perfection. Therefore the aforesaid names [“good” and “wise”] signify the divine substance, but in an imperfect manner, even as creatures represent it imperfectly.¹³

Despite this imperfect signification, Aquinas, as we shall see, holds that the attributes which we predicate of God, exist in God absolutely perfectly.¹⁴ Furthermore, the predication of these attributes to God can be taken as the measure of all other predications of these attributes. Thus, “knowledge” as it is applied to God, which will be of interest to us, is the measure against which all other uses of “knowledge” are measured.¹⁵

Analogy is a linguistic doctrine. It alludes to the way a word is used. Chapter 34 of the first book of the *Summa Contra Gentiles* [SCG] gives a typical description of analogical use:

From what we have said, therefore, it remains that the names said of God and creatures are predicated neither univocally nor equivocally, but analogically, that is, according to an order or reference to something one.¹⁶

Although the original Latin doesn't actually use the term 'names', the translation is accurate. That term and the verb 'predicated' are extremely important in the above quote. In many of the quotes which follow, we will see that these terms frequently recur. They highlight that analogy is fundamentally a linguistic device which allows the same word to be predicated of a variety of subjects. So we can speak of God's knowledge and human knowledge. Both are radically different, as we shall see, yet the use of the same concept to describe both shows that what is signified share elements in common. Two caveats must be made. Firstly in the statements: 'God is good' and 'man is good,' 'good' is being used analogically. In the statements: 'man is an animal' and 'the cat is an animal,' 'animal' is not being used analogically. In the case of 'animal' a genus is being predicated of a species. This is not so in the case of 'good.' The reasons for this distinction, which will be important in our discussion of human knowledge, will become apparent when we look at analogical usage. Secondly, to say that 'knowledge' is used analogically is not to say that knowledge is an

¹² ST 1a q13 a2c Significant enim sic nomina Deum secundum quod intellectus noster cognoscit ipsum. Intellectus autem noster cum cognoscat Deum ex creaturis, sic cognoscit ipsum, secundum quod creaturae ipsum repraesentant.

¹³ ST 1a q13 a2c Et hoc supra expositum est cum perfectione divina agebatur. Sic igitur praedicta nomina divinam substantiam significant, imperfecte tamen, sicut et creaturae imperfecte eam repraesentant.

¹⁴ ST 1a q4 a2c.

¹⁵ See, for example, ST 1a q16 a5c quoted on page 15 (footnote 23) of this work.

¹⁶ Sic igitur ex dictis reliquitur, quod, ea quae de Deo et rebus aliis dicuntur, neque aequivoce, neque univoce praedicantur, sed analogice; hoc est, secundum ordinem vel respectum ad aliquod unum.

analogical concept. In Aquinas' scheme, analogy has no place in his metaphysics or philosophy of mind. It is the use of the concept, not the concept itself, which is analogical.

ST 1a q13 is devoted to theological language and there we find Aquinas discussing analogy. In article 5 on discussing whether words are used univocally or equivocally of God and creatures he writes:*

Therefore, it must be said that these names are said of God and creatures in an analogous sense, i.e. according to proportion .

Now names are thus used in two ways: either according as many things are proportionate to one thus, for example, healthy predicated of medicine and urine in relation and in proportion to health of a body, of which the former is the cause and the latter the sign: or as according as one thing is proportionate to another, thus, healthy is said of medicine and animal, since medicine is the cause of health in the animal body. And in this way some things are said of God and creatures analogically, and not in a purely equivocal nor in a purely univocal sense. For we can name God only from creatures. Thus, whatever is said of God and creatures, is said according to the relation of a creature to God as its principle and cause, wherein all perfections of things preexist excellently.¹⁷

Aquinas discusses this matter further in the following article:

In names predicated of many in an analogical sense, all are predicated because they have reference to some one thing: and this one thing must be placed in the definition of them all. And since that expressed by the name is the definition, as the Philosopher says, such a name must be applied primarily to that which is put in the definition of such other things, and secondarily to those others according as they approach more or less that first..... Hence as regards what the name signifies, these names are applied primarily to God rather than to creatures, because these perfections flow from God to creatures: but as regards the imposition of names, they are primarily applied by us to creatures which we know first. Hence

*This translation is taken, not from the Blackfriars edition, but from that of the English Dominicans. Normally, the Blackfriar's edition of the *Summa Theologiae* is used to provide the translated texts in the body of the paper. However, Herbert McCabe's translation of question 13 is rather too free. For this reason the translation done by the English Dominican Province is used in quotes of question 13.

¹⁷ Dicendum est igitur quod huiusmodi nomina dicuntur de Deo et creaturis secundum analogiam, idest, proportionem.

Quod quidem dupliciter contingit in nominibus: vel quia multa habent proportionem ad unum, sicut sanum dicitur de medicina et urina in quantum utrumque habet ordinem et proportionem ad sanitatem animalis; cujus hoc quidem signum est, illud vero causa: vel ex eo quod unum habet proportionem ad alterum, sicut sanum dicitur de medicina et animali, in quantum medicina est causa sanitatis, quae est in animali.

Ex hoc modo aliqua dicuntur de Deo et creaturis analogice, et non aequivoce pure neque pure univoce. Non enim possumus nominare Deum nisi ex creaturis, ut supra dictum est. Et sic quicquid dicitur de Deo et creaturis, dicitur secundum quod est aliquis ordo creaturae ad Deum ut ad principium et causam, in qua praeexistunt excellenter omnes rerum perfectiones.

they have a mode of signification which belongs to creatures, as was said above.¹⁸ Both these statements require some unpacking because they take us to the heart of Aquinas' understanding of analogy. Primarily words which are used analogically of God and creatures find their proper meaning, their signification, when applied to God, for it is in God alone that the perfection signified by the word is found. This is because the perfection exists in God essentially, and so the term is predicated of God essentially. In us, such predications are made by participation:

Now nothing is predicated of God and creatures as though they were in the same order, but, rather, according to priority and posteriority. For all things are predicated of God essentially. For God is called being as being entity itself, and he is called good as being goodness itself. But in other beings predications are made by participation, as Socrates is said to be a man, not because he is humanity itself, but because he possesses humanity.¹⁹

Moreover, each good thing that is not its goodness is called good by participation. But that which is named by participation has something prior to it from which it receives the character of goodness. This cannot proceed to infinity, since among final causes there is no regress to infinity, since the infinite is opposed to the end. We must, therefore, reach some first good, that is not by participation good through an order toward some other good, but is good through its own essence. This is God. God is, therefore, his own goodness.²⁰

In the first instance, as we indicated earlier, we predicate terms of creatures because it is as creatures that we know and experience the world. However, when they are predicated of creatures such terms signify the creatures' imperfect exemplification of what exists perfectly in God, for example, goodness. The terms, as *ST* 1a q13 a6 notes, are properly predicated of God, it is in him that what the terms signify exist perfectly and essentially. We imperfectly represent what the terms signify. This concept of participation, imperfect

¹⁸ *ST* 1a q13 a6c Dicendum quod in omnibus nominibus quae de pluribus analogice dicuntur, necesse est quod omnia dicantur per respectum ad unum. Et ideo illud unum oportet quod ponatur in definitione omnium. Et quia ratio quam significat nomen per prius dicatur de eo quod ponitur in definitione aliorum, et per posterius de aliis secundum ordinem quo appropinquant ad illud primum vel magis vel minus.....Unde secundum hoc dicendum est quod quantum ad rem significatam per nomen per prius dicuntur de Deo quam de creaturis, quia a Deo huiusmodi perfectiones in creaturas manant; sed quantum ad impositionem nominis per prius a nobis imponuntur creaturis, quas prius cognoscimus. Unde et modum significandi habent qui competit creaturis, ut supra dictum est.

¹⁹ *SCG* I 32. 7 Nihil autem de Deo et rebus aliis praedicatur eodem ordine, sed secundum prius et posterius, quum de Deo omnia praedicentur essentialiter; dicitur enim ens quasi ipsa essentia, et bonus quasi ipsa Bonitas. De aliis autem fiunt praedicationes per participationem: sicut Socrates dicitur homo, non quod sit ipsa humanitas, sed humanitatem habens.

²⁰ *SCG* I 38. 4 Item, Unumquodque bonum, quod non est sua bonitas, participatione dicitur bonum. Quod autem per participationem dicitur bonum, aliquid ante se praesupponit, a quo rationem suscipit bonitatis. hoc autem in infinitum non est possibile abire; quia in causis finalibus non proceditur in infinitum; infinitum enim repugnat fini; bonum autem rationem finis habet. Oportet igitur devenire ad aliquid aliud, sed sit per essentiam suam bonum; hoc autem est Deus. Est igitur Deus sua Bonitas.

representation, will become more apparent as we discuss the analogical use of 'knowledge'. In the works of Cajetan and later commentators this feature was discussed under the heading of analogy of attribution.

As creator, God is the source of such creaturely exemplifications. This is what Aquinas means in *ST* 1a q13 a5 when he talks of the order that creatures have to God as their principle and cause. As Norbert Mtega puts it:

Thus all the analogies used to express the relation of creatures to God must be based on this fact that things bear a direct relation to God as effect to its cause and they have an ontological link of intrinsic likeness.²¹

Thus the core meaning of such analogical terms which ground all the other analogical uses is found in their application to God who is their cause and who possesses what the terms signify essentially and perfectly: the other uses must be seen in light of this.

One further point regarding God as principle and cause of such creaturely exemplifications must be made. Aquinas is aware that such a statement is open to misunderstanding. When Aquinas says that God is, for example, the cause of goodness, he does not mean what Alan of Lille meant when he said this. Alan of Lille said that such a statement 'God is good' means God is the cause of goodness. St. Thomas is quite adamant that this is an erroneous opinion. Aquinas' meaning of 'God is good' and other statements like it is much more nuanced:

So when we say "God is good," the meaning is not "God is the cause of goodness" or "God is not evil"; but the meaning is "Whatever good we attribute to creatures pre-exist in God" and in a more excellent and higher way. Hence it does not follow that God is good because he causes goodness; but rather, on the contrary, he causes goodness in things because he is good.²²

Knowledge and truth in God are also discussed in similar terms:

You find truth in the mind when it apprehends the thing as it is, and truth in the thing when it possesses being conformable to mind. This is verified most of all in God. For his being is not only in conformity with his intellect, but is his very act of knowing; and his act of knowing is the measure and cause of all other being and all other intellect; and he himself is his own being and his own act of knowing. Hence it

²¹ Mtega 1984, page 78.

²² *ST* 1a q13 a2c Cum igitur dicitur *Deus est bonus*, non est sensus, *Deus est causa bonitatis*, vel *Deus non est malus*, sed est sensus *Id quod bonitatem dicimus in creaturis praeexistit in Deo*, et hoc quodime secundum altiore. Unde ex hoc non sequitur quod Deo competat esse bonum in quantum causat bonitatem, sed potius e converso quia est bonus bonitatem rebus diffundit.

follows not only that truth is in God but also that he is the supreme and original truth.²³

The term 'knowledge' as it is applied to God is the measure of all other uses of the term because God's knowledge is perfect knowledge. This is the sense in which Aquinas sees 'knowledge' being used analogically: the various uses of the term must be seen in light of its use as it is applied to God.

It is when we consider what St. Thomas has to say about the analogical use of the term 'knowledge' to God's knowledge and human knowledge in *Quaestiones Disputatae De Veritate* [DV] q2 a1 1 that we get a deeper insight into the relationship of the different analogical predications of terms. Deeper, yet also more confused because he appears to contradict himself. In DV q2 a1 1c he writes:

Consequently, it must be said that knowledge is predicated neither entirely univocally nor yet purely equivocally of God's knowledge and ours. Instead, it is predicated analogously, or, in other words according to proportion. Since an agreement according to proportion can happen in two ways, two kinds of community can be noted in analogy. There is a certain agreement between things having a proportion to each other from the fact that they have a determinate distance between each other, like the proportion which the number two has to unity in so far as it is the double of unity. Again, the agreement is occasionally noted not between two things which have a proportion between them, but rather between two related proportions, for example, six has something in common with four because six is two times three, just as four is two times two. The first type of agreement is one of proportion; the second of proportionality.

We find something predicated analogously of two realities according to the first type of agreement when one of them has a relation to the other, as when being is predicated of substance and accident because of the relation which accident has to substance, or as when healthy is predicated of urine and animal because urine has some relation to the health of an animal. Some times, however, a thing is predicated analogously according to the second type of agreement, as when sight is predicated of bodily sight and of the intellect because understanding is in the mind as sight is in the eye.

In those terms predicated according to the first type of analogy, there must be some definite relation between the things having something in common analogously. Consequently nothing can be predicated analogously of God and creature according to this type of analogy; for no creature has such a relation to God

²³ ST 1a q16 a5c Veritas inveniatur in intellectu secundum quod apprehendit rem ut est, et in re secundum quod habet esse conformabile intellectui. Hoc autem invenitur maxime in Deo. nam esse suum non solum est conforme suo intellectui, sed etiam est ipsum suum intelligere; et suum intelligere est mensura et causa omnis alterius esse et omnis alterius intellectus; et ipse est suum intelligere et suum esse. Unde sequitur quod non solum in ipso sit veritas, sed quod ipse sit summa et prima veritas.

that it could determine the divine perfection. But in the other type of analogy, no definite relation is involved between the things which have something in common analogously, so there is no reason why some name cannot be predicated analogously of God and creature in this manner.²⁴

As we see Aquinas' example of the first type of analogy is the predication of being to both accidents and substances because of the relation accidents have to substances. His standard analogical example of the health of urine and animal, which also makes an appearance, is also of this type. Sight being predicated of bodily sight and the intellect, in so far as the intellect's act of understanding is in the mind as sight is in the eye, is cited as an example of analogy of proportionality. Knowledge, he says, is used analogously of humans and God according to proportionality. Hence, they signify something similar but are radically different enterprises. There is no definite relation between them as there is in the first case, analogy of proportion, in so far as healthy urine is related to, the sign of, a healthy body, because the healthy body is the cause of the healthy urine.

This seems to contradict *ST* 1a q13 a5c where he says that:

whatever is said of God and creatures is said according to the relation of a creature to God as its principle and cause.²⁵

Moreover, a passage from *SCG* I 34 also seems to contradict *DV* q2 a1 1c which, as we saw above, states that terms predicated analogically of God and creatures are not predicated according to an analogy of proportion, as in the case of predicating being of accidents and substance, rather the predication is according to an analogy of proportionality. In *SCG* I 34,

²⁴ Unde dicendum est, quod nec omnino univoce, nec pure aequivoce, nomen scientiae de scientia Dei et nostra praedicatur; sed secundum analogiam, quod nihil est aliud dictu quam secundum proportionem. Convenientia enim secundum proportionem potest esse duplex; et secundum hoc duplex attenditur analogiae communitas.

Est enim quaedam convenientia inter ipsa quorum est ad invicem proportio, eo quod habent determinatam distantiam vel aliam habitudinem ad invicem, sicut binarius cum unitate, eo quod est eius duplum; convenientia etiam quandoque attenditur duorum ad invicem inter quae non sit proportio, sed magis similitudo duarum ad invicem proportionum, sicut senarius convenit cum quaternario ex hoc quod sicut senarius est duplum ternarii, ita quaternarius binarii.

Prima ergo convenientia est proportionis, secunda autem proportionalitatis.; unde, et secundum modum primae convenientiae invenimus aliquid analogice dictum de duobus quorum unum ad alterum habitudinem habet; sicut ens dicitur de substantia et accidente ex habitudine quam substantia et accidente ex habitudine quam substantia et accdens habent; et sanum dicitur de uirna et animali, ex eo quod urina habet aliquam similitudinem ad sanitatem animalis.

Quando vero dicitur aliquid analogice secundo modo convenientiae; sicut nomen visus dicitur de visu corporali et intellectu, eo quod sicut visus est in oculo, ita intellectus est in mente. Quia ergo in his quae primo modo analogice dicuntur, oportet esse aliquam determinatam habitudinem inter ea quibus est aliquid per analogiam commune, impossibile est aliquid per hunc modum analogiae dici de Deo et creatura; quia nulla creatura habet talem habitudinem ad Deum per quam possit divina perfectio determinari.

Sed in alio modo analogiae nulla determinata habitudo attenditur inter ea quibus est aliquid per analogiam commune; et ideo secundum illum modum nihil prohibet aliquod nomen analogice dici de Deo et creatura.

²⁵ Et sic quidquid dicitur de Deo et creaturis, dicitur secundum quod est aliquis ordo creaturae ad Deum ut ad principium et causam

extensively quoted below, when discussing how names are predicated analogically of God and humans St. Thomas writes:

This can take place in two ways. In one way, according as many things have reference to something one. Thus, with reference to one health we say that an animal is healthy as the subject of health, medicine is healthy as it cause, food as its preserver, urine as its sign.

In another way, the analogy can obtain according as the order or reference of two things is not to something else but to one of them. Thus being is said of substance and accident as an accident has reference to a substance, and not according as substance and accident are referred to a third thing.

Now, the names said of God and things are not said analogically according to the first mode of analogy, since we should have to posit something prior to God, *but according to the second mode.*

In this second mode of analogical predication the order according to the name and according to reality is sometimes found to be the same and sometimes not. For the order of the name follows the order of knowledge, because it is a sign of an intelligible conception. When, therefore, that which is prior in reality is found likewise to be prior in knowledge, the same thing is found to be prior both according to the meaning of the name and according to the nature of the thing. Thus, substance is prior to accident both in nature, in so far as substance is included in the definition of accident, and in knowledge, in so far as substance is included in the definition of accident. Hence being is said of substance by priority over accident both according to the nature of the thing and according to the meaning of the name. But when that which is prior in nature is subsequent in our knowledge, then there is not the same order in analogicals according to reality and according to the meaning of the name. Thus the power to heal, which is found in health-giving things, is by nature prior to the health that is in the animal, as a cause is prior to an effect; but because we know this healing power through an effect, we likewise name it from its effect. Hence it is that the health-giving is prior in reality, but animal is by priority called healthy according to the meaning of the name.

Thus, therefore, because we come to a knowledge of God from other things, the reality in the name said of God and other things belong by priority in God according to his mode of being but the meaning of the name belongs to God by posteriority.

and so he named from his effects.²⁶ [My emphasis]

Prior to our consideration of the apparent contradictions some comments ought to be made on where the various passages agree and disagree. The analogical use of health and healthy things in the discussion of the latter part of *SCG* I 34.4 (the largest paragraph of the quote) agrees with *ST* 1a q13 a5c where Aquinas states that whatever is predicated analogically of God and creatures “is said according to the relation of a creature to God as its principle and cause.” This is how health is predicated of animals and things which cause health in the animal. His consideration of what is prior and posterior in signification and reality, knowledge and nature, in the passage from *SCG* I 34.4 also concurs with what we read in *ST* 1a q13 a6c. Yet, this passage from the *Summa Contra Gentiles*, in using the example of the predication of being to substance and accidents, conflicts with what he writes about this very example in *DV* q2 a11c.

To clarify the situation concisely: *SCG* I 34 concurs with *ST* 1a q13 aa5-6, while *DV* q2 a11c fails to agree with either of them. We noted earlier the apparent contradiction between *DV* q2 a11c and *ST* 1a q13 a5c. Thus it seems that *DV* q2 a11 is something of a misfit, it not only fails to concur with, but also appears to contradict, what he writes elsewhere. What should be made of this?

Three comments must be made. First, *DV* q2 a11c does not contain a theory of analogy that is a historical development of the other two passages. In fact, according to authorities cited by James Weisheipl, *De Veritate* is an earlier work than the *Summa Contra Gentiles* and the

²⁶ *SCG* I 34. 3-6 Quod quidem dupliciter contingit. Uno modo, secundum quod multa habent respectum ad aliquod unum, sicut secundum respectum ad unam sanitatem, animal dicitur sanum, ut ejus subjectum; medicina ut ejus effectivum; cibus, ut ejus conservativum; urina, ut ejus signum.

Alio modo, secundum quod duorum attenditur ordo vel respectus non ad aliquid alterum, sed ad unum ipsorum; sicut ens de substantia et accidente dicitur, secundum quod accidens ad substantiam respectum habet, non secundum quod substantia et accidens ad aliquod tertium referantur.

Hujusmodi ergo nomina de Deo et rebus aliis non dicuntur analogice secundum primum modum (oportet enim aliquid Deo ponere prius), sed modo secundo.

In hujusmodi autem analogica praedicatione ordo attenditur idem secundum nomen et secundum rem, quandoque vero non idem. Nam ordo nominis sequitur ordinem cognitionis, quia est signum intelligibilis conceptionis. Quando igitur id, quod prius est secundum rem, invenitur etiam cognitione prius, idem invenitur prius et secundum nominis rationem et secundum rei naturam. Sic substantia prior est accidentis; et cognitione, in quantum substantia in diffinitione accidentis ponitur. Et ideo ens dicitur prius de substantia quam de accidente, et secundum rei naturam et secundum nominis rationem. Quando vero illud, quod est prius secundum naturam, est posterius secundum cognitionem, tunc in analogicis non est idem ordo secundum rem et secundum nominis rationem; sicut virtus sanandi, quae est in sanitivis, prior est naturaliter sanitate quae est in animali, sicut causa effectui. Sed quia hanc virtutem per effectum cognoscimus, ideo etiam ex effectui nominamus. Et inde est, quod sanitivum est prius sanum, secundum nominis rationem. Sic igitur, quia ex rebus aliis in Dei cognitionem pervenimus, res nominum de Deo et rebus aliis dictorum per prius est in Deo secundum suum modum, sed ratio nominis per posterius; unde et nominari dicitur a suis causatis.

Summa Theologiae.²⁷ Second, it is possible that Aquinas may have contradicted himself. The third option is to explain the discrepancies in terms of the passage from *De Veritate* having a different emphasis than the other two and also giving a more detailed account of analogy than the other two. That is to say, the accounts in *SCG* I 34 and *ST* 1a q13 aa5-6 give an adequate, but not as detailed, account of the analogical predication of terms to God and creatures. They do point out that there is not some third thing to which analogy refers as in the case of health, medicine and urine²⁸ for there is nothing prior to God.²⁹ They point out that the analogy is drawn strictly in so far as terms are predicated of one thing as the cause and principle of predication in all other things³⁰; and that we come to know this one thing after the others things, despite its ontological priority.³¹

Certainly the examples used in *DV* q2 a11 appear to contradict *SCG* I 34. 4 and *ST* 1a q13 aa5-6 with regard to what it says about God as principle and cause. Rather than see this as undermining his position we could view this situation as showing the difficulties Aquinas faced in seeking to balance the total otherness of God, his inestimable distance from his creatures with the fact there is some kind of similitude, some definite relation, between God and creatures.³² In *DV* q2 a11 he places more emphasis on God's otherness than on the relationship of God and creature which exists in so far as God is creator. He does this by drawing an even finer distinction in the type of analogical predication used of God and creatures than in the other relevant passages. Hence, a distinction is drawn between analogy according to proportion and analogy according to proportionality. The example of sight, the concept of analogy of proportionality, allows him to highlight, more forcefully than the health or being examples, the tension of the sameness and difference of terms when they are analogically used of God and creatures while at the same time maintaining God's otherness. *DV* q2 a11 is an extremely detailed and nuanced description of the theological usage of analogy. The other two passages are less concerned with God's otherness and treat the issue of analogical predication in a less detailed way, content to state merely that terms are used analogically of God and creatures, not in reference to some third thing, but to God as principle and cause. If this explanation fails to convince then we must draw the conclusion that he has contradicted himself. As this paper is essentially concerned with his epistemology

²⁷ Weisheipl O.P. 1974. page360ff. According to Weisheipl *De Veritate* was written in Paris c1256-57; the relevant part of the *Summa Contra Gentiles* in Paris c1258-59; the *Prima Pars* of the *Summa Theologiae* in Viterbo in 1268.

²⁸ *ST* 1a q13 a5c

²⁹ *SCG* I 34. 4

³⁰ see the texts quoted in the two previous footnotes.

³¹ *ST* 1a q13 a6c; *SCG* I 34 .5

³² *DV* q2 a11c ...nec tamen potest dici quod omnino aequivoce praedicetur quidquid de Deo et creatura dicitur, quia si non esset aliqua convenientia creaturae ad Deum secundum rem, sua essentia non esset creaturarum similitudo; et ita cognoscendo essentiam suam non cognosceret creaturas. Similiter etiam nec nos ex rebus creatis in cognitionem Dei pervenire possemus; nec nominum quae creaturis aptantur, unum magis de eo dicendum esset quam aliud; quia ex aequivocis non differt quodcumque nomen imponatur, ex quo nulla rei convenientia attenditur.

and the role of analogy within it, as opposed to analogy itself we will accept that his description of analogy is not without its internal difficulties, but move on nonetheless to consider our primary concern: his analogical use of the term 'knowledge'. As we shall see regarding the analogical use of knowledge, God as principle and cause forms a central part of his theory of analogical predication. We will firstly consider what divine knowledge is. On this basis we can then move on to discuss the analogical uses of the term as it is applied firstly to angels and then to humans.

b. God's knowledge

The prologue to Aquinas' consideration of divine knowledge in *ST* 1a q14 is informative. Among other things it tells us that knowledge is an operation; it is also a kind of living and, most importantly, it is of what is true. Each of these points are expanded upon in St. Thomas' detailed treatment of the issue in *ST* 1a q14. The first article of the question asks, is there knowledge in God? The question is answered affirmatively. In fact "God has knowledge and that in the most perfect way."³³ *ST* 1a q14 a1 opens with a thesis which states that there can be no knowledge in God because knowledge is a disposition and God cannot have dispositions as he is pure act. Aquinas' rebuttal of this thesis allows him to state explicitly an important feature of God's knowledge:

The perfections that go out from God into creatures are in God in a higher way, as we have said above; therefore whenever a description taken from any perfection of a creature is attributed to God, we must eliminate from its meaning all that pertains to the imperfect way it is found in the creature. Hence knowledge in God is not a quality nor a habitual capacity, but substance and pure actuality.³⁴

God's knowledge is his being, his substance. For God to know and to be are the same thing. Thus:

Since, therefore, God has no potentiality but is pure actuality, in him intellect and what is known must be identical in every way: thus he is never without the knowledge likeness, as our intellect is when it is only potentially knowing; and in him knowledge likeness is not different from the substance of the divine intellect, as in ourselves the knowledge likeness is different from the substance of our intellect when we are actually knowing.³⁵

...since his essence is also the knowledge species, as we have said, it necessarily

³³ *ST* 1a q14 a1c Dicendum quod in Deo perfectissime est scientia.

³⁴ *ibid* ad1. Ad primum ergo dicendum quod, quia perfectiones procedentes a Deo in creaturas, altiori modo sunt in Deo, ut supra dictum est, oportet quod quodcumque aliquod nomen sumptum a quacumque perfectione creaturae Deo attribuitur, secludatur ab ejus significatione omne illud quod pertinent ad imperfectum modum qui competit creaturae. Unde scientia in Deo non est qualitas vel habitus, sed substantia et actus purus.

³⁵ *ST* 1a q14 a2c. Cum igitur Deus nihil potentialitatis habeat, sed sit actus purus, oportet quod in eo intellectus et intellectum sint idem omnibus modis: ita scilicet ut neque careat specie intelligibili, sicut intellectus noster cum intelliget in potentia; neque species intelligibilis sit aliud a substantia intellectus divini, sicut accidit in intellectu nostro cum est actu intelligens.

follows that this act of knowing is his essence and his being.³⁶

Herein lies a major difference between divine knowledge and the knowledge of creatures. In God such knowledge is his being, or to put it rather clumsily, it is something substantial. As existence is God's essence, St. Thomas can also say, as he says above, that God's knowledge is his essence. In creatures, as we shall see, knowledge is neither a part of the creature's substance nor essence, but an accident. Despite this radical difference, knowledge, knowing something is, for God and creatures, an operation; an activity, albeit one which in us may only exist potentially.

In question 14 of the *Prima Pars* of the *Summa Theologiae* and its parallel texts such as *De Veritate* question 2, *Summa Contra Gentiles* I: 44-71, and parts of book XII of the *Commentary on the Metaphysics of Aristotle*, Aquinas gives a full treatment of the different aspects of divine knowledge. Some of what he says we can acknowledge in passing: God knows and understands himself,³⁷ in a sense he also has knowledge of non-existent things and evil,³⁸ God knows infinities,³⁹ God has knowledge of future contingent events,⁴⁰ His knowledge is unchangeable and speculative.⁴¹ Other aspects of his thought deserve fuller comment because these aspects show the importance of analogy in Aquinas' use of the term 'knowledge'. They show how one word can be used analogically to signify what in reality are radically different processes. In St. Thomas' discussion of these aspects we see what he meant when he wrote:

as regards what the name signifies, these names are applied primarily to God rather than to creatures, because these perfections flow from God to creatures: but as regards the imposition of names, they are primarily applied by us to creatures which we know first.⁴²

What we know of knowledge we know from our consideration of it as it is found in creatures. Yet the perfection of what the word signifies is found only in God. This perfect signification is the point of focus for all other uses of the word. Thus to fully understand what is meant by knowledge careful consideration must be given to its use as he applies it to God.

As we have seen God's knowledge is his act of being.⁴³ This fact grounds everything that Aquinas has to say regarding divine knowledge. After discussing this, St. Thomas moves

³⁶ *ibid* a4c Unde, cum ipsa sua essentia sit etiam species intelligibilis, ut dictum est, ex necessitate sequitur quod ipsum ejus intelligere sit ejus essentia et ejus esse.

³⁷ *ST* 1a q14 aa2-3; *DV* q2 a2; *SCG* I, 47; III,55; *In Meta* XII 8.

³⁸ *ST* 1a q14 a9; a10; *DV* q2 a8; a15; *SCG* I 66; 71

³⁹ *ST* 1a q14 a 12; *DV* q2 a9; q20 a4 ad 1; *SCG* I 69.

⁴⁰ *ST* 1a q14 a13; *DV* q2 a12; *SCG* I 67.

⁴¹ *ST* 1a q14 a15; a16; *DV* q2 a5; q3 a3.

⁴² *ST* 1a q13 a6c. See footnote 18 for full extract

⁴³ *ST* 1a q14 a4c

on to consider God's knowledge of things other than himself.⁴⁴ What he says gives an important insight into the nature of divine knowledge, in particular, and to knowledge in general:

God must know things other than himself. For evidently he knows himself perfectly: otherwise his being would not be perfect, since his being is his act of knowledge. But if something is known perfectly, its power must be known perfectly. Now the power of a thing cannot be known perfectly unless the objects to which the power extends are known. Hence, since the divine power extends to other things by being the first cause which produces all beings, as is clear from what has been said above, God must know things other than himself. And this will be still more evident if we add that the very being of God, the first efficient cause must be in his act of knowledge; and everything there must be in the condition of intelligibility; for all that is there in another is therein according to the condition of that which it is.⁴⁵

The insight is this: the power of a thing cannot be known perfectly unless the objects to which the power extends are known. Knowledge always has an object. In other words, knowledge, whether it is reflexive or otherwise, is always knowledge of something, or to put it more technically, knowledge is always knowledge of being.

Before we go on to discuss divine knowledge further it is worth noting that reflexive knowledge is of no great interest to us in this work. Hence, in this work, when we speak of knowledge we mean knowledge of objects external to the knower. Whether this knowledge is divine, angelic or human they share a fundamental feature; they are the result of the intellect grasping being external to it. In the case of divine knowledge God knows such beings "not in themselves but in himself, because his essence contains the likeness of things other than himself."⁴⁶ This issue of 'likeness,' is of crucial importance in his account of knowledge. We will return to it later. However, at the moment we can note that it is by proposing this concept of likeness that St. Thomas can speak of knowledge as a kind of living, in so far as the knowledge-likeness of the thing is nothing other than the thing's form, which has real existence in the thing, existing intentionally in the intellect.

Several other articles of *ST* 1a q14 are devoted to explaining and expanding what is meant

⁴⁴ *ST* q14 a5c; *SCG* I 48; 49

⁴⁵ *ST* 1a q14 a5c. Dicendum quod necesse est deum cognoscere alia a se. Manifestum est enim quod seipsum perfecte intelligit: alioquin suum esse non esset perfectum, cum suum esse sit suum intelligere. Si autem aliquid perfecte cognoscitur, necesse est quod virtus ejus perfecte cognoscantur. Virtus autem alicujus rei perfecte cognosci non potest, nisi cognoscantur ea ad quae virtus se extendit. Unde, cum virtus divina se extendat ad alia, eo quod ipsa est prima causa effectiva omnium entium, ut ex supra dictis patet, necesse est quod Deus alia a se cognoscat. Et hoc etiam evidentius fit si adjungatur quod ipsum esse causae agentis primae, scilicet Dei, est ejus intelligere. Unde quicumque effectus prae existunt in Deo sicut in causa prima, necesse est quod sint in ipso ejus intelligere; et quod omnia in eo sint secundum intelligibilem modum: nam omne quod est in altero, est in eo secundum modum ejus in quo est.

⁴⁶ *ST* q14 a5c Alia autem a se videt non in ipsis, sed in seipso, in quantum essentia sua continet similitudinem aliorum ab ipso.

by God's essence containing the likeness of things other than himself. Much of what he says is just as pertinent for human intellection. God knows things specifically, that is in their differences from one another.⁴⁷ If God did not know things specifically, but merely in terms of universals, his knowledge would not be perfect. Furthermore, to return to an important issue alluded to in article five, God's knowledge is the cause of things. Aquinas says that God's knowledge stands to created things as an artist's to his products.⁴⁸ God's knowledge is like the artist's in so far as the artist knows his work prior to its creation, the effect in the cause. Two important corollaries arise from this. Firstly:

Just as the knowable things of nature are prior to our knowledge, and are its measure, so God's knowledge is prior to natural things and is their measure.⁴⁹

Both divine and human intellects know the things of nature, both know by means of likenesses, yet the relations of such knowledge to the things of nature are different: one is measured by them, the other is not. Secondly, God even knows individual material things.⁵⁰ As God's knowledge is the same as his causality; his active power and thus knowledge extend also to matter. This is where the parallel between the artist and God, made above, breaks down, for the artist's knowledge of his product extends only to its form, but God is the cause of both the matter and form of the individual, and as such must have knowledge of them. Moreover, he has such knowledge essentially:

He [God] must know things other than himself through his essence, in so far as it is the likeness of things as their productive principles; therefore, his essence must be the sufficient principle for knowing all things that come into existence through him, not merely in their human natures but in their individuality.⁵¹

In light of the essential nature of this knowledge, God's knowledge is not discursive;⁵² unlike us he does not have to form propositions or reason to acquire knowledge.⁵³

Aquinas sums all of this up by saying that God's knowledge is simple. We have already encountered this in the earlier quote from *ST* 1a q14 a1 ad 2. This simplicity rests on God's complete perfection and freedom from materiality.⁵⁴ According to St. Thomas the more free from matter a thing is the more it has a capacity to know. Human knowledge is limited in its perfection because of the intellect's relationship to the body and the fact that its object exists in material reality; hence human knowledge exists in a state of division and multiplicity, it

⁴⁷ *ST* 1a q14 a6c

⁴⁸ *ibid* a 8

⁴⁹ *ibid* ad3 Unde, sicut scibilia naturalia sunt priora quam scientia nostra, et mensura ejus, ita scientia Dei est prior quam res naturales, et mensura ipsarum.

⁵⁰ *ibid* a11c

⁵¹ *ibid*. Cum enim sciat alia a se per essentiam suam, in quantum est similitudo rerum velut principium activum earum, necesse est quod essentia sua sit principium sufficiens cognoscendi omnia quae per ipsum fiunt, non solum in universali, sed etiam in singulari.

⁵² *ST* 1a q14 a7c

⁵³ *ST* 1a q14 a14c

⁵⁴ *ST* 1a q14 a1c

lacks the simplicity indicative of God's knowledge. This issue of imperfect representation which we have already noted is also echoed in Aquinas' treatment of angelic knowledge:

The greater an angel is in being the fewer ideas he requires in order to grasp the intelligible universe.⁵⁵

The further one moves down the hierarchy of creation from God through the various ranks of angels to the lowest intellect, that of humans, the more knowledge exists in a state of division and multiplicity, the more the knowledge in question imperfectly represents divine knowledge.

Despite what you might term this deterioration, the analogical use of 'knowledge' allows Aquinas to use the same word to describe the radically different intellectual activities of each. Fundamentally these different activities have some things in common: knowledge is an assimilation between the knower and the thing known as the result of the intellect's encounter with being external to it.⁵⁶ As he puts it in *ST* 1a q85 a2 ad1 when challenging the thesis that intelligible species are the object of knowledge, as opposed to the means:

What is understood is in the one who understands by means of its likeness.⁵⁷

Moreover the goal of this intellectual activity is always the same: truth.⁵⁸ As the opening question of *De Veritate* puts it:

True expresses the correspondence of being and the knowing power, for all knowing is produced by an assimilation of the knower to the thing known, so that assimilation is said to be the cause of knowledge..... this is what true adds to being, namely the conformity or equation of thing and intellect.⁵⁹

In God there is no assimilation between the knowing power and the object. As we have seen God knows the object through his own essence. Nonetheless, truth is indicative of God's knowledge for the simple reason that God is Truth:

Truth is a certain perfection of understanding or of intellectual operation, as has been said. But the understanding of God is his substance. Furthermore, since this understanding is, as we have shown, the divine being, it is not perfected through any superadded perfection; it is perfect through itself, in the same manner as we have shown of the divine being. It remains, therefore, that the divine substance is truth

⁵⁵ *ST* 1a q55 a3 c Sic igitur quanto angelus fuerit superior, tanto per pauciores species universalitatem intelligibilium apprehendere poterit.

⁵⁶ See for example, Aristotle's *De Anima*. III. 5 where he writes: "Knowledge in act is the same as the thing itself." Aquinas makes several comments on this, one of which is: "its [the intellect] actual knowledge is identical with the thing known..." *In D. A.* III 10 [... scientia in actu, est idem rei scitae..]

⁵⁷ Ad primum ergo dicendum quod intellectum est in intelligente per suam similitudinem.

⁵⁸ *ST* 1a q16 a1c

⁵⁹ *DV* q1 a1c Convenientiam vero entis ad intellectum exprimit hoc nomen verum. Omnis autem cognitio perficitur per assimilationem cognoscentis ad rem cognitionam, ita quod assimilatio dicta est causa cognitionis.....Hoc est ergo addit verum supra ens, scilicet conformitatem, sive adaequationem rei et intellectus.

itself.⁶⁰

Furthermore, nothing can be said of God by participation, since He is his own being, which participates in nothing. but, as was shown above, there is truth in God. If, then, it is not said by participation, it must be said essentially. Therefore, God is His truth.⁶¹

As we now move on to consider creatures who have knowledge not essentially, but by participation, we will see that assimilation and truth are common features. What differs is the manner in which each know being and the intellects' subsequent grasp of truth. Throughout all that follows the measure, "the same, one thing," as *ST* 1a q13 a6 puts it, to which angelic and human knowledge are compared is the account of divine knowledge which we have outlined over the last few pages.

c. Angelic knowledge

St. Thomas divides creatures into three categories: those which are solely spiritual; those which are solely corporeal; and humans who are composed of body and spirit.⁶² According to Aquinas a complete universe must contain some incorporeal creatures which stand midway between God and corporeal things.⁶³ These, Aquinas notes, are what the bible termed 'angels.'⁶⁴ The presuppositions and arguments which underpin his belief in the existence of angels are not our concern.

We have already pointed out that everything which Aquinas has to say about God's knowledge ultimately springs from what we can say of knowledge as it exists in humans: on the basis of what he knows regarding human knowledge, he posits a theory of what divine knowledge must be like. Similarly with his account of angelic knowledge, it is essentially an account of a creature's knowledge minus the constraints that corporeality places on human knowledge: an account of what an intellectual, non-corporeal creature's knowledge must be like.

⁶⁰ *SCG* I 60. 2. Veritas enim quaedam perfectio intelligentiae est sive intellectualis operationis, ut dictum est. Intelligere autem Dei est substantia; ipsum etiam intelligere, quum sit divinum esse, ut ostensum est, non superveniente aliqua perfectione perfectum est, sed est per seipsum perfectum, sicut et de divino esse supra ostensum est. Relinquitur igitur quod divina substantia sit ipsa veritas.

⁶¹ *ibid* 4. Praeterea, de Deo nihil participative dici potest, quum sit suum esse, quod nihil participat. Sed veritas est in Deo ut supra ostensum est. Si igitur non dicatur participative, oportet quod non dicatur essentialiter, ut supra ostensum est. Deus ergo est sua veritas.

⁶² See the prologue to his treatise on angels. *ST* 1a qq 50-64 deal with the angels; qq65-74 deal with corporeal creatures; qq75-102 deal with humanity.

⁶³ *ST* 1a q50 a1c. Unde necesse est ponere, ad hoc quod universum sit perfectum, quod sit aliqua incorporea creatura.

ibid ad1. Ad primum ergo dicendum quod substantiae incorporeae medium sunt inter Deum et creaturas corporeas.

⁶⁴ See the prologue to his discussion of angels.

We will base our discussion of his theory of angelic epistemology on what he writes about angels in the *Summa Theologiae*. There, Aquinas tells us that angels:

have no bodies as part of their nature; hence none of the powers that we find in the soul can be attributed to angels except intelligence and volition.....Moreover the order of the universe would seem to require that creatures most abundantly endowed with intelligence should be wholly intellectual, and not only partly so like the human soul. Hence, too, angels are called 'intellects' or 'minds.'⁶⁵

The angels are called intellects because their knowledge is wholly intellectual.⁶⁶ On the one hand this seems a rather obvious conclusion to draw. If the angels do not have bodies, they do not have any senses and so cannot have any sensory knowledge. Intellectually is the sole manner in which they know something. On the other hand, the above statement is indicative of Aquinas' method in discussing angelic knowledge: there is a reference to human intellectual capacity, such references will occur again and again in his discussion on angelic epistemology as he develops the point he is making. This reinforces our earlier point regarding his method: beginning from his account of human knowledge, he strips away all those features of our knowledge which are a result of our corporeality, in order to arrive at a description of the knowledge which a purely intellectual, noncorporeal creature must possess. This aspect of his methodology notwithstanding, the central role of divine knowledge in his epistemology will also become apparent. As we have said, it is the measure against which all other predications of 'knowledge' are measured: the very structure of his discussion on angelic knowledge in question 54 of the *Prima Pars* of the *Summa Theologiae* bears this out.

Our consideration of divine knowledge in *ST* 1a q14 revealed that God's act of knowledge is identical with his substance, his being. God can have no accidents, he is utterly simple. He knows things in himself in so far as he is the cause of them. Furthermore, given that, in God existence and essence are identical, God's knowledge is identical with his essence, his existence. The first three articles of question 54 on angelic knowledge address these issues with regard to angels.

Article one asks if the angel's act of understanding is identical with his substance? St. Thomas answers negatively for three reasons: in no created thing is substance identical with activity, thus the intellectual activity of an angel cannot be his substance; secondly, if the angel's act of understanding were his substance it would be a form existing on its own, as such he says, it would not be distinguishable from God's substance or from that of any other angel; thirdly, Aquinas maintains that angels have knowledge to a greater or lesser degree depending on their place in the heavenly hierarchy, that is depending on how much they participate in the divine perfection, this would not be the case if their act of

⁶⁵ *ST* 1a q54 a5c. Angeli autem non habent corpora sibi naturaliter unita, ut ex supra dictis patet. Unde de viribus animae non possunt eis competere nisi intellectus et voluntas.....Et hoc convenit ordini universi, ut suprema creatura intellectualis sit totaliter intellectiva, et non secundum partem, ut anima nostra. Et propter hoc etiam angeli vocantur intellectus et mentes, ut supra dictum est.

⁶⁶ *ST* 1a q54 a3 ad1

understanding were identical with their substance.

Article two asks if the angel's act of understanding is identical with his existence? Again this is answered negatively because activity and existence are distinct in angels, as they are in all creatures. God alone exists as pure act, in creatures, even the angels, as we shall see, there is always an element of potentiality regarding the act of understanding. The next article of *ST* 1a q54 asks if the angel's power to understand is identical with his essence? Again a negative response is given:

Neither in the angel nor in any other creature can the power or capacity to act be identical with the essence: and this for the following reason. Since a power or potentiality is always a power to be in act in some way, therefore different acts imply different powers; hence the saying, 'as the act, so the power.' Now in every created being, as we have already seen, the essence differs from the act of existence, and is related to it as a potentiality to exist to actual existence. Now the act that corresponds to the capacity for any action is simply that action. But in the angels the action of understanding differs from the act of existing; indeed every action of created beings, whether angels or anything else, is distinct from the act of existing. Therefore the angel's essence is not identical with his power to understand; nor is any created essence identical with a capacity for activity.⁶⁷

This quote brings together some of the elements to which we have briefly alluded in our outline of the first three articles of his treatment of angelic knowledge. We can see that much of what they say takes its cue from what he said regarding divine knowledge. As in God, so in the angels, the act of understanding is a power. However, the angel's possession of this power is unlike God's in several important respects: it is an accident, it does not pertain to the angel's substance, essence or existence. Once this comparison has been made in *ST* 1a q54 aa1-3 and the distinctions between angelic and divine knowledge made clear, he moves on to consider a comparison to the human act of understanding.

Angelic knowledge, as we have seen, is different from God's knowledge, it is an accident of the angel. In this regard the angel's knowledge is like the human's knowledge which is an accident of his soul. *ST* 1a q54 a4 is an example of how Aquinas moves from what he knows of the human intellect in order to clarify what an angelic intellect must be like. He asks if there is a difference between the agent and potential intellects in angels. Aquinas explains the rationale behind this distinction. It arises from the human intellect's endeavour to know material reality. Firstly, on the side of the human intellect, he says that when we look at the human intellect we find that it is only potentially understanding, that is, it is in

⁶⁷ *op. cit.* Dicendum quod nec in angelo neque in aliqua creatura virtus vel potentia operativa est idem quod sua essentia. Quod sic patet. Cum enim potentia dicatur ad actum, oportet quod secundum diversitatem actuum sit diversitas potentiarum; propter quod dicitur quod proprius actus respondet propriae potentiae. In omni autem creato essentia differt ab ejus esse et comparatur ad ipsum sicut potentia operativa est operatio. In angelo autem non est idem intelligere et esse; nec aliqua alia operatio aut in ipso, aut in quocumque alio creato, est idem quod ejus esse. Unde essentia angeli non est ejus potentia intellectiva, nec alicujus creati essentia est ejus operativa potentia.

potency to intelligible objects before it actually understands them. This power is called the potential intellect.⁶⁸ Then, on the side of the object of the human intellect, material reality, we see that:

..immattered forms are not actually intelligible, it followed that the natures or forms of sense things we understand are not, as things stand, open to understanding....So it was necessary to posit a power of the intellectual order which made things actually able to be understood by abstracting the thought of them from their material conditions. That is why we speak of the abstractive power of the mind.⁶⁹

A more accurate translation of the last the sentence of this quote would be: "And this is necessary to posit the agent intellect." The important point, however, is that for the above reasons a distinction is drawn in the human intellect between the potential intellect and the agent intellect. Aquinas' argument in *ST* 1a q54 progresses as follows: having discounted any similarity between the divine intellect and the angelic intellect in their act of understanding; in article four Aquinas considers if there is a similarity between angelic and human intellects by asking if the same distinction of agent and potential intellects exists in the angel's intellect, as it does in those of the angel's fellow creatures, human beings. The answer is no. The reasons for this can be found in his consideration of how the angelic intellect functions; this draws heavily on Aquinas' psychology of the human mind .

ST 1a q58, discusses the functioning of the angelic intellect. He states in the first article that while the human mind can be in potentiality to what it can know before it has acquired knowledge, this is not the case with the angelic intellect because:

the angelic intelligences have no capacity to understand to which there does not correspond, inborn in their nature, and as the fulfilment of such a capacity, some intelligible representation of reality.⁷⁰

This issue of inborn knowledge is a crucial feature of Aquinas' angelic epistemology.

According to St. Thomas, if an angel is to know things other than himself, his intellect must be brought to completion by ideas which represent them.⁷¹ As an angel has no senses the acquisition and formation of these ideas cannot follow the model found in human intellection. Aquinas proposes that the ideas by which an angel knows something must be intrinsic to the angel's nature:

⁶⁸ *op. cit.* Dicendum quod necessitas ponendi intellectum possibilem in nobis fuit propter hoc quod nos invenimur quandoque intelligentes in potentia et non in actu. Unde oportet esse quamdam virtutem quae sit in potentia ad intelligibilia ante ipsum intelligere, sed educitur in actum eorum cum fit sciens, et ulterius cum fit considerans. Et haec virtus vocatur intellectus possibilis.

⁶⁹ *ST* 1a q79 a3c formae autem in materia existentes non sunt intelligibiles actu, sequebatur quod naturae seu formae rerum sensibilibus quas intelligimus non essent intelligibiles actu.....Oportet igitur ponere aliquam virtutem ex parte intellectus quae faceret intelligibilia in actu per abstractionem specierum a conditionibus materialibus. Et haec est necessitas ponendi intellectum agentem.

⁷⁰ *ST* 1a q58 a1c Ita coelestes intellectus, scilicet angeli, non habent aliquam intelligibilem potentiam quae non sit totaliter completa per species intelligibiles connaturales eis.

⁷¹ *ST* 1a q55 a1c... angelus autem per suam essentiam non potest omnia cognoscere, sed oportet intellectum ejus aliquibus speciebus perfici ad res cognoscendas.

.. the higher substances, the angels, exist non-materially in complete freedom from bodies, subsisting simply as intelligible essences. Hence, they attain their appropriate perfection by an inflow of intelligibility from God, which gives them, simultaneously with the intellectual nature they receive from him, the intelligible forms in which they know things other than themselves.⁷²

A reply to an objection makes the connection between angelic knowledge and God even more explicit:

It is true that the angelic mind contains likenesses of other creatures; but likenesses derived not from creatures but from their cause, namely God, in whom, as in their causal origin, the likenesses of all these things preexist.⁷³

In short, angels know things by means of innate ideas which the creator infused into them when he created them. As *ST* 1a q56 a2c puts it:

God imprinted on the angelic mind certain likenesses of the things that he produced in their own natural being. And this included not only the likenesses of bodily things, but also those of all spiritual creatures; for the forms of both types of creatures exist from eternity in the divine Word.⁷⁴

It is from God that angels have knowledge. This innate knowledge which angels have is radically different from human knowledge because unlike human knowledge, the knowledge of an angel is solely intellectual. This innate, intellectual knowledge is one reason why there is no distinction in the angelic intellect between a potential and an agent intellect. Other aspects of *ST* 1a q58 emphasise the uniquely intellectual character of angelic knowledge which distinguishes it from human knowledge. Unlike humans, angels can understand several things at once because of their intellectual knowledge which they have from the divine essence.⁷⁵ Equally, unlike the human intellect, the angelic intellect does not know by means of discursive thinking nor by distinguishing and combining concepts:

This is why they are called intellectual beings; for even in our case, the things we grasp immediately we say we see 'intellectually,' and so we give the name 'intelligence' to our latent habitual capacity to intuit first principles. But the human soul in general we describe as 'rational' to indicate its way of acquiring true knowledge by a discursive process, a way imposed by the dimness of intellectual

⁷² *op. cit.* a2c Substantiae immaterialiter et in esse intelligibili subsistentes. Et ideo suam perfectionem intelligibilem consequuntur per intelligibilem effluxum, quo a Deo species rerum cognitarum acceperunt simul cum intellectuali natura.

⁷³ *op. cit.* a2 ad1 Ad primum ergo dicendum quod in mente angeli sunt similitudines creaturarum, non quidem ab ipsis creaturis acceptae, sed a Deo, qui est creaturarum causa, et in quo primo similitudines rerum existunt.

⁷⁴ *op. cit.* In intellectum autem angelicum processerunt per hoc quod Deus menti angelicae impressit rerum similitudines, quas in esse naturali produxit. In Verbo autem Dei ab aeterno exstiterunt non solum rationes rerum corporalium, sed etiam rationes omnium spiritualium creaturarum.

⁷⁵ *ST* 1a q58 a2 c Angeli igitur ea cognitione qua cognoscunt res per Verbum, omnia cognoscunt una intelligibili specie, quae est essentia divina, et ideo quantum ad talem cognitionem omnia simul cognoscunt.

light in it.⁷⁶

Since then this light [the intellectual light] is at its full strength in an angel... we have to say that just as an angel does not understand discursively, by syllogisms, so he does not understandably distinguishing and combining.⁷⁷

This perfect sharing in the intellectual light also means that angels cannot be mistaken about what they know: in knowing a given essence they know all that can be affirmed or denied of the essence in the natural order.⁷⁸ Thus an angel's knowledge is also immediate; the innate knowledge it possesses tells it everything that can be known or predicated about what is the object of its knowledge. Such innate and immediate knowledge also entails a grasp of truth:

....the angelic mind contains likenesses of other creatures; but likenesses derived not from creatures but from their cause, namely God, in whom, as in their causal origin, the likenesses of all these things preexist.⁷⁹

As was stated earlier, truth is in the intellect when it apprehends a thing as it is.⁸⁰ Clearly, as the knowledge likeness comes from God as the causal origin of the creature, such a knowledge likeness must correspond to the object of knowledge. Thus, the angel apprehends the thing as it is by virtue of its innate knowledge: thus by virtue of its innate knowledge it possesses the truth. Moreover, to return to the matter of perfectly sharing in the intellectual light, this is another reason for not positing a potential and an agent intellect operative in the angelic act of understanding.

It is interesting to note the language that St. Thomas uses in comparing angelic and human intellection: he refers to the 'perfect light' of the angelic intellect and the human intellect's 'dimness' in comparison. This alludes to a theme which is very much an undercurrent of his thought: creation's imperfect representation of the divine perfection and the deterioration of creation's participation in this perfection as we move further down the chain of beings from the Godhead. We also see this phenomenon in *ST* 1a q55 a3c where he discusses how the greater angels know more by means of more general ideas than the lesser angels. According to him the closer an angel is to the Godhead, or as he puts it 'the greater an angel is in being,'⁸¹ the more it knows by means of fewer ideas. God knows by means of his one

⁷⁶*ibid.* a3c Et ideo dicuntur intellectuales; quia etiam apud nos ea quae statim naturaliter apprehenduntur, 'intelligi' dicuntur; unde 'intellectus' dicitur habitus primorum principiorum. Animae vero humanae, quae veritatis notitiam per quemdam discursum acquirunt, 'rationales' vocantur. Quod quid contingit ex debilitate intellectualis luminis in eis.

⁷⁷ *ibid.* a4 Unde cum in angelo sit lumen intellectuale perfectum.... relinquatur quod angelus sicut non intelligit ratiocinando, ita non intelligit componendo et dividendo.

⁷⁸ *ibid.* a5c.

⁷⁹ *ST* 1a q55 a2 ad1 Ad primum ergo dicendum quod in mente angeli sunt similitudines creaturarum, non quidem ab ipsis creaturis acceptae, sed a Deo, qui est creaturarum causa, et in quo primo similitudines rerum existunt.

⁸⁰ *ST* 1a q16 a5c.

⁸¹ *op. cit.* Sic igitur quanto angelus fuerit superior, tanto per pauciores species universalitatem intelligibilium apprehendere poterit; et ideo oportet quod ejus formae sint universaliores, quasi ad plura se extendentes unaquaeque earum.

divine essence. Those closest to him have a knowledge which approaches this, but obviously lacks the perfection of God's. Conversely, angels further from the Godhead, those of a lower rank,⁸² require more ideas by which to know the intelligible universe: knowledge exists in them in a more piecemeal and fragmented fashion. As we shall see when we come to look at human intellection, because of the dimness of the intellectual light in the human intellect, knowledge exists there *per se* in a fragmented and divided manner.

As the earlier quote from *ST* 1a q56 a2 makes clear, angels, regardless of rank, have an innate knowledge of spiritual and material reality. As a means of concluding our consideration of angelic knowledge we will look briefly at some features of angelic knowledge which we have not yet discussed .

At the basis of what Aquinas has to say on angelic knowledge is his belief that an angel is a "non-material form existing on its own."⁸³ and that all that they know, they know by an infusion of knowledge from God. Thus:

So then in every spiritual creature the forms of all things, both bodily things and spiritual, were imprinted by the word. But here we must draw a distinction. Each angel received his own specific form from the Word, both as his natural being and as the object of his intelligence; received it, that is, so that he should now both subsist in his own specific nature and at the same time understand himself by it. But the forms of other beings whether spiritual or corporeal, he received only as objects of intelligence, that is to say as ideas through which he might know both corporeal and spiritual creatures.⁸⁴

Angels' knowledge of both spiritual and material things is accomplished by the same means: intelligible forms infused into them by God. Even their knowledge of God has an innate aspect to it: they know him, not through creation as we know him, but through the imprint of God that their own essence bears.⁸⁵

As creatures, angel's knowledge is limited in some respects; they cannot know the future or the thoughts of another angel or man in the way that God can know these.⁸⁶ However, since they share more perfectly in the intellectual light, their knowledge is far superior to ours. We have already seen one consequence of this superior, innate knowledge: angelic knowledge of

⁸² According to Dionysius, from whom Aquinas developed much of his angelology, the angels were graded into a hierarchy of choirs. *ST* 1a q108

⁸³ *ST* 1a q56. a1c Angelus autem, cum sit immaterialis, est quaedam forma subsistens.

⁸⁴ *ST* 1a q56 a2c Sic igitur unicuique spiritualium creaturarum a Verbo Dei impressae sunt omnes rationes rerum omnium tam corporalium quam spiritualium; ita tamen quod unicuique angelo impressa est ratio suae speciei secundum esse naturale et intelligibile simul, ita scilicet quod in natura suae speciei subsisteret, et per eam se intelligeret. Aliarum vero naturarum, tam spiritualium quam corporalium, rationes sunt ei impressae secundum esse intelligibile tantum, ut videlicet per huiusmodi species impressas tam creaturas corporales quam spirituales cognosceret.

⁸⁵ *ST* 1a q56 a3c.

⁸⁶ *ST* 1a q57 aa3-4.

an object is complete and certain knowledge, it cannot be mistaken.⁸⁷ Another aspect of its superiority is that angels not only know material things, they also know material things in their particularity:

As therefore the divine essence, by which God causes all things, is that likeness of all things through which he knows all things- and not only in general but also in particular- so too the angels, through representational likeness imparted to them by God, know things, not only in terms of their natures in general but also in their individual particularity, knowing them as manifold representations of that one simple divine essence.⁸⁸

The human intellect, on the other hand, can only have direct intellectual knowledge of universals, of the natures which particular things instantiate. Thus, in itself the human intellect cannot directly know a material individual; to know such a particular, the human intellect must turn to the sense images. A fuller exposition of this will be given below. For the moment it is sufficient to acknowledge that knowing things is their particularity is another sign of the superiority of the angelic intellect. x

This outline of angelic knowledge shows that angelic knowledge differs vastly from divine knowledge: the latter knowledge is always in act, being the very substance of God himself. The knowledge attributed to the angels has a degree of potentiality, and more importantly, is an accident of their substance. We have seen, and will see, that angelic knowledge is also vastly different from that attributed to humans: its innateness, immediacy, knowledge of particulars are just some of its features which mark its uniqueness.

While we have yet to fully discuss Aquinas' account of human acts of understanding, it is interesting to note the interplay and comparisons that are drawn between the intellectual acts of God, angels and creatures, and within this, the role that divine understanding, divine knowledge, plays as the measure of the whole enterprise. What he said of divine knowledge is significant for his discussion of angelic knowledge in *ST* 1a q54. As we progress further away from the divine perfection to creatures whose share of the intellectual light is extremely dim, 'knowledge' is still used to describe the consequences of these vastly different intellectual operations when they attain their good: the grasp of truth. We will now move on to consider 'knowledge' as he predicates it of the result of human intellectual activity. As we consider this, we will also see that such knowledge exists in a fragmented and divided manner, yet when knowledge is predicated of these different types of human knowledge, it is not predicated analogically.

⁸⁷ *ST* 1a q58 a3

⁸⁸ *ST* 1a q57 a2 c Sicut igitur Deus per essentiam suam, per quam omnia causat, est similitudo omnium, et per eam omnia cognoscit non solum quantum ad naturas universales, sed etiam quantum ad singularitatem, ita angeli per species a Deo inditas cognoscunt res non solum quantum ad naturam universalem, sed etiam secundum earum singularitatem, inquantum sunt quaedam repraesentationes multiplicatae illius unice et simplicis essentiae.

d. Human knowledge

Throughout this discussion we have alluded to aspects of human intellectual activity and knowledge. It is now time to draw these aspects together in a more systematic way. We have already seen that St. Thomas often speaks of the dimness of the human intellect. Our discussion in this section of the paper will highlight the implications of this dimness. When we come to look at how human beings know, and indeed the fragmented nature of human knowledge, we will be content merely to offer a sketch of the various acts of the human intellect and the various types of human knowledge. This will set the scene for our deeper discussion of our knowledge of material reality which is the subject of *ST* 1a q84. That later discussion will entail a detailed treatment of perceptual knowledge and other elements of Aquinas' human epistemology.

In a discussion of the intellectual powers of the human soul, Aquinas writes that:

The scope of our intellectual activity, as we have seen, is being in general.⁸⁹

In *ST* 1a q84 a8 he is a little more specific:

As mentioned, the proper object proportioned to our intellect is the nature of sensible things.⁹⁰

Unlike God and the angels the human intellect cannot know such material individuals directly.⁹¹ This is another feature of the human intellect's dimness, or to put it more technically, another example of how our knowledge imperfectly represents the divine perfection which is knowledge. St. Thomas is never reluctant to point out this debilitated aspect of the human intellectual capacity: the dimness of our intellect retards our intellect's grasp of its proper object. The following extracts give a flavour of his thoughts on this matter:

We do not know a great many of the properties of sensible things, and in most cases we are not able to discover fully the natures of those properties that we apprehend by sense.⁹²

So it is clear that our way of understanding discursively and our way of understanding by putting ideas together and taking them apart are due to the same cause; that our first apprehension of any object does not immediately show us whatever is implicitly contained in it. And this is what I have called the dimness of

⁸⁹ *ST* 1a q79 a2. Intellectus enim, sicut supra dictum est, habet operationem circa ens in universali.

⁹⁰ Dicendum quod, sicut dictum est, proprium objectum intellectui nostro proportionatum est natura rei sensibilis.

⁹¹ *ST* 1a q86 a1.

⁹² *SCG* I 3.4. Rerum enim sensibilibus plurimas proprietates ignoramus, earumque proprietatum, quas sensu apprehendimus, rationem perfecte in pluribus invenire non possumus.

the intellectual light in our souls.⁹³

Since the essential principles things are hidden from us we are compelled to make use of accidental differences as indications of what is essential.⁹⁴

As Thomas Collins notes we must engage:

in long reasoning processes which are beset with doubt and uncertainty in the perception of truth. We are forced to make a gradual discovery of truth, advancing by means of first principles and experimental data to the investigation of an unknown field.⁹⁵

We are in danger of preempting much of our consideration of human knowledge. The crucial point to note at the outset is that the human intellect can know the truth: it is capable of knowledge despite the fact that its intellectual light is dim and its object is material reality. In *ST* 1a qq84-89 Aquinas gives a full treatment of human intellectual ability. It is to that treatment, given in those questions and elsewhere, that we now turn our attention. As we consider his account we will see once again the importance of the analogical use of 'knowledge' and how divine knowledge is seen as the measure of all knowledge.

That the human soul knows material things is stated in the first article of *ST* 1a q84. Having granted this, the first thing Aquinas does is to consider the manner in which the human soul has this knowledge. Just as in the case of angelic knowledge in *ST* 1a q54 a1, an allusion is immediately made to divine knowledge when the second article of question 84 asks if the soul understands material things through its own essence or through species. Aquinas' discussion of this issue summarises the positions of various pre-Socratic philosophers and Plato before concluding that it is the characteristic of God alone to understand everything by his own essence, the human intellect knows by means of immaterial species. In the angels such immaterial species are innate. *ST* 1a q84 a3 asks if this is the case with species of the human intellect? No, the human intellect, Aristotle tells us and Aquinas reiterates, is like "a sheet of paper on which no word is yet written, but many can be written."⁹⁶ As Aristotle makes clear:

Have we not already disposed of the difficulty about interaction involving a common element, when we said that the mind is in a sense potentially whatever is thinkable, though actually it is nothing until it has thought? What it thinks must be in it just as characters may be said to be on a writing tablet on which as yet nothing actually

⁹³ *ST* 1a q58 a4 Sic igitur patet quod ex eodem provenit quod intellectus noster intelligit discurrendo, et componendo, et dividendo, ex hoc scilicet quod non statim in prima apprehensione alicujus primi apprehensi potest inspicere quidquid in eo virtute continetur; quod contingit ex debilitate luminis intellectualis in nobis, sicut dictum est. The translator has opted to insert the word 'soul', whereas the original text merely talks of the dimness of the intellectual light in us.

⁹⁴ *In D.A.* I.1 Sed quia principia essentialia rerum sunt nobis ignota, ideo oportet quod utamur differentiis accidentalibus in designatione essentialium.

⁹⁵ Collins 1947, page 181.

⁹⁶ *In D.A.* III. 9.

stands written this is exactly what happens with mind.⁹⁷

Unlike the angels:

the lesser intellectual substances, namely human souls, have an intellectual capacity which is not fulfilled by the natures they start with, but has to be fulfilled gradually, through a reception of intelligible forms drawn from other realities.⁹⁸

The species by which the human intellect knows are neither of its own essence nor innate. Aquinas goes on to discount any notion of Platonic forms or a Christian version of them. As he discusses Augustine's theory that the soul knows all truths in the divine ideas he reiterates the notion of humanity's imperfect representation of the divine light:

For the intellectual light in us is nothing more than a participating likeness of the uncreated light in which the divine ideas are contained.⁹⁹

Having done this he begins his account of how human knowledge is possible.

The immaterial species by which the human intellect knows are the result of the intellect acting on sense impressions, or as Aquinas calls them, the *phantasmata*.¹⁰⁰ *ST* 1a q84 aa6-8 and *ST* 1a q85 aa1-2 outline the relationship between the intellect and the senses in the acquisition of knowledge: this relationship is essential to the human act of knowing. Much of what St. Thomas has to say regarding the relationship of the intellect and the senses is tied up with his philosophy of mind and his account of human psychological processes. This may seem to put this relationship out with the remit of a discussion of his epistemology. However, to fully appreciate what he has to say regarding human knowledge we must consider his account of how human beings acquire knowledge. Moreover, although only a brief consideration of the relationship between the intellect and senses will be given here, this will nonetheless help to show that Aquinas' theory of knowledge has an important descriptive dimension.

A man, Aquinas tells us in the prologue to *ST* 1a qq75-83, is a compound whose substance is both spiritual and corporeal: he consists of a body and soul. Interestingly Aquinas is at pains to stress that the soul is not the individual, the individual is the body/soul compound.¹⁰¹ Without getting distracted with the *minutiae* of his account of the soul's

⁹⁷ *De Anima* III 4.

⁹⁸ *ST* 1a q55 a5 inferiores substantiae intellectivae, scilicet animae humanae, habent potentiam intellectivam non completam naturaliter sed completur in eis successive per hoc quod accipiunt species intelligibiles a rebus

⁹⁹ *ST* 1a q84 a5 Ipsum enim lumen intellectuale quod est in nobis nihil est aliud quam quaedam participata similitudo luminis increati, in quo continentur rationes aeternae. "aeternae", has been translated as "divine" as opposed to "eternal".

¹⁰⁰ *DV* q 19 a1c. In the translations of the different extracts which will be taken from the Thomistic corpus we will see *phantasmata* translated in a variety of ways: phantasms, sense images, sense impressions.

¹⁰¹ *ST* 1a q75 a4.

relationship to the body, we can note in passing that the soul is the form of the body,¹⁰² that it subsists,¹⁰³ that every individual has a soul,¹⁰⁴ that the soul survives the death of the body,¹⁰⁵ that it is not like an angel,¹⁰⁶ and that the human soul has many powers.¹⁰⁷ Following Aristotle, Aquinas singles out five powers of the soul for special mention: the vegetative, the sensitive, the appetitive, the intellective and the locomotive.¹⁰⁸ In *ST* 1a q78 a1c St. Thomas discusses the five powers of the soul at length, in particular the relationship of each and the rationale for positing these different powers. Of interest to us is the relationship between the senses, which pertain to the soul's sensitive power, and the intellective power of the soul. As a means of considering this relationship we must recall a feature of the human intellective power that appeared earlier in our discussion of angelic knowledge

There we referred to the distinction in the human intellect between the possible intellect and the agent intellect. At the basis of this distinction is Aquinas' belief that human intellect is only potentially knowing:

...the human understanding, lowest among intellects and remotest from the perfection of God's mind, is in a state of potentiality in relation to what it can understand, and *is initially like a blank page on which nothing is written*, as Aristotle writes. Which is obvious from the fact that initially we are solely able to understand and afterwards we come actually to understand.¹⁰⁹ [Editor's emphasis]

This 'coming to actually understand' Aquinas describes in terms of passivity:

But the word 'passivity' is also used in a more general sense, when a thing which can receive something does receive it without losing anything thereby. And in this sense anything that passes from a state of potential to one of actual being is said to be passive, even when it comes to its fulfilment, and thus our act of understanding is an undergoing or being passive.¹¹⁰

As a created intellect the human intellect is receptive or passive. Prior to the acquisition of knowledge, it is not in actuality to all it can understand, it has however, the potentiality or

¹⁰² *ST* 1a q76 a1.

¹⁰³ *ST* 1a q75 a3.

¹⁰⁴ *ST* 1a q76 a2.

¹⁰⁵ *ST* 1a q75 a6.

¹⁰⁶ *ST* 1a q76 a7.

¹⁰⁷ *ST* 1a q77 a2.

¹⁰⁸ *ST* 1a q78 a1sc.

¹⁰⁹ *ST* 1a q79 a2c Intellectus autem humanus, qui est infimus in ordine intellectum et maxime remotus a perfectione divini intellectus, est in potentia respectu intelligibilium, et in principio est *sicut tabula rasa in qua nihil est scriptum*, ut Philosophus dicit. quod manifeste apparet ex hoc, quod in principio sumus intelligentes solum in potentia, postmodum autem efficimur intelligentes in actu. "Divini intellectus" has been translated as "God's mind."

¹¹⁰ *ibid.* Tertio modo dicitur aliquid pati communiter, ex hoc solo quod id quod est in potentia ad aliquid recipit illud ad quod erat in potentia, absque hoc quod aliquid abjiciatur. Secundum quem modum omne quod exit de potentia in actum potest dici pati, etiam cum perficitur, et sic intelligere nostrum est pati.

possibility to understand. It is, as the reference to Aristotle acknowledges, a *tabula rasa*. This blankness of the human intellect is compounded by the fact that material things existing in the world, are not actually intelligible. We saw Aquinas discussing the unintelligibility of material things in *ST* 1a q79 a3c.¹¹¹

The abstractive power of the mind, the agent intellect, makes what is unintelligible intelligible and so reduces the possible intellect to act. In the next article Aquinas defends the thesis of an agent intellect, not from the point of view of making the unintelligible intelligible, but from the human intellect's representation of the divine act of understanding:

The abstractive [*agens*, agent] intellect of which Aristotle speaks belongs to the soul. This is evident if we consider that above man's intellectual soul there must be a higher intelligence from which the soul receives the power of understanding. For what is such by way of participation and subject to change and imperfect always presupposes something essentially and changelessly and perfectly such. Now the human intellectual soul is described as participatingⁱⁿ the power of understanding. One sign of this is that it is not totally intellectual, but only partly so. It also arrives at an understanding discursively, by a process, pro and con. And it has but an imperfect understanding, both in that it does not understand it comes to understand everything and in that what it does understand it comes to understand, passing from potential to actual understanding. So there must be some higher intelligence which accounts for the soul's understanding.¹¹²

The possible and agent intellects are not two different intellectual powers, but different facets of the one intellectual power. The activity of each is essential to the enterprise of knowing, as is the activity of the senses. St. Thomas addresses the relationship of the possible intellect, the agent intellect and the senses in *SCG* II 77. The following quote from this passage forms part of a much wider discussion on the human soul in which Aquinas challenges the doctrines of Avicenna who said that there was only one agent intellect for all human beings and that the possible intellect does not preserve intelligible species.¹¹³ On the relationship in question Aquinas writes:

For the intellective soul has something actual to which the phantasm is potential, and is potential to something present actually in the phantasm; since the substance of the human soul is possessed of immateriality, and, as is clear from what has been said, it

¹¹¹ See page 27.

¹¹² *ST* 1a q79 a4c Dicendum quod intellectus agens de quo Philosophus loquitur est aliquid animae. Ad cuius evidentiam considerandum est quod supra animam intellectivam humanam necesse est ponere aliquem superiorem intellectum a quo anima virtutem intelligendi obtineat. Semper enim quod participat aliquid et quod est mobile et quod est imperfectum praeexigit ante se aliquid quod est per essentiam suam tale, et quod est immobile et perfectum. anima autem humana intellectiva dicitur per participationem intellectualis virtutis. Cujus signum est, quod non tota est intellectiva, sed secundum aliquam sui partem. peretigit etiam ad intelligentiam veritatis cum quodam discursu et motu, arguendo. Habet etiam imperfectam intelligentiam, tum quia non omnia intelligit, tum quia in his quae intelligit de potentia procedit in actum. Oportet ergo esse aliquem altiorem intellectum quo anima juvetur ad intelligendum.

¹¹³ Chapters 55-90 of *SCG* II deal with issues pertaining to the soul's union with the body.

therefore has an intellectual nature- every immaterial substance being of this kind. But this does not mean that the soul is now likened to this or that determinate thing, as it must be in order to know this or that thing determinately; for all knowledge is brought about by the likeness of the thing known being present in the knower. Thus, the intellectual soul itself remains potential with respect to the determinate likenesses of things that can be known by us, namely, the natures of sensible things. It is the phantasms which present these determinate sensible natures to us. But these phantasms have not yet acquired intelligible actuality, since they are likenesses of sensible things even as to material conditions, which are the individual properties, and, moreover, the phantasms exist in material organs. Consequently, they are not actually intelligible. They are, however, potentially intelligible, since in the individual man whose likenesses the phantasms reflect it is possible to receive the universal nature stripped of all individuating conditions. And so, the phantasms have intelligibility potentially, while being actually determinate as likenesses of things. In the intellective soul the opposite was the case. Hence, there is in that soul an active power vis-a-vis the phantasms, making them actually intelligible; and this power is called the agent intellect; while there is also in the soul a power that is in potentiality to the determinate likenesses of sensible things; and this power is the possible intellect.¹¹⁴

This lengthy extract contains much of what Aquinas discusses in *ST* 1a q84 aa6-8 and q85 aa1-2, not least that all knowledge is brought about by the likeness of the thing known being present in the knower.

His story of human knowledge is that in this life what we know comes from what we sense.¹¹⁵ For it:

is for the good of the soul to be joined to the body and to understand by turning to

¹¹⁴ *SCG* II. 77.2 Habet enim anima intellectiva aliquid in actu, ad quod phantasma est in potentia; et ad aliquid est in potentia, quod in phantasmatis actu invenitur. Habet enim substantia animae humanae immaterialitatem; et sicut ex dictis patet, ex hoc habet naturam intellectualem, quia omnis substantia immaterialis est hujusmodi. Ex hoc autem nondum habet quod assimiletur huic vel illi rei determinate, quod requiritur ad hoc quod anima nostra hanc vel illam rem determinate cognoscat; omnis enim cognitio fit secundum similitudinem cogniti in cognoscente. Remanet igitur ipsa anima intellectiva in potentia ad determinatas similitudines rerum cognoscibilium a nobis quae sunt naturae rerum sensibilium. Et has quidem determinatas naturas rerum sensibilium praesentant nobis phantasmata, quae tamen nondum prevenerunt ad esse intelligibile, quum sint similitudines rerum sensibilium etiam secundum conditiones materiales, quae sunt proprietates individuales et sunt etiam in organis materialibus. Non igitur sunt intelligibilia actu; et tamen quia, in hoc homine cujus similitudinem repraesentant phantasmata, et accipere naturam universalem denudatam ab omnibus conditionibus individuantibus, sunt intelligibilia in potentia. Sic igitur habent intelligibilitatem in potentia, determinationem autem similitudinis rerum in actu. E contrario autem erat in anima intellectiva. Est igitur in anima intellectiva virtus activa in phantasmata, faciens ea intelligibilia actu; et haec potentia animae vocatur intellectus agens. Est etiam in ea virtus quae est in potentia ad determinatas similitudines rerum sensibilium; et haec est potentia intellectus possibilis.

¹¹⁵ We will leave aside, for the moment, what he has to say about the disembodied soul's knowledge.

sense images.¹¹⁶

In fact:

It is impossible for intellect, in its present state of being joined to a body capable of receiving impressions, actually to understand anything without turning to sense images.¹¹⁷

St. Thomas reiterates this in the last article of *ST* 1a q84 by stating that it is impossible for us to have complete knowledge of a thing when the senses are bound, or sensory experience lacking. However, as the text of *SCG* II.77.2 makes clear, such sensory images, because of their materiality, cannot be the whole cause of our knowledge. They are, as he puts it, in *ST* 1a q84 a6 the matter of the cause of our knowledge.

Alexander Broadie in his introduction to Robert Kilwardby's *On Time and Imagination* ¹¹⁸ points out that in a hierarchically arranged system like that proposed by Kilwardby, and indeed St. Thomas, the direction of government is from the more perfect to the less perfect. Within such a system, the lower cannot act upon the higher: the sensory power cannot act on the intellectual power. Yet clearly, we know things because we sense them, is this not an example of the lower power acting on the higher? No, Aquinas outlines the relationship of the lower and higher powers, the senses and the intellect, as follows:

... the intellectual activity is caused by the senses by way of these images. However, since these images are not capable of effecting a change in the possible intellect but must be made actually intelligible, by the agent intellect, it is not right to say that sensible knowledge is the total and complete cause of intellectual knowledge-better to say it is somehow the material of the causes.¹¹⁹

Sensible objects impinge on the sense organs, which eventually leads to sensory images in the sensory soul.¹²⁰ Such sensory images, however, cannot reduce the possible intellect to act. The superior activity of the agent intellect acting on the *phantasmata*, the sensory images, is required to create intelligible species. Without the activity of the agent intellect there would be no intellectual activity. Sense knowledge is crucial for intellectual knowledge, but of itself it cannot cause intellectual knowledge; this is a result of the higher, intellectual power acting on the lower, sensory power. St. Thomas sums up the situation:

Sense knowledge is not the whole cause of intellectual knowledge, and it is no cause

¹¹⁶ *ST* 1a q89 a1c Sic ergo patet quod propter melius animae est ut corpori uniat, et intelligat per conversionem ad phantasmata.

¹¹⁷ *ST* 1a q84 a7c Dicendum quod impossibile est intellectum nostrum secundum praesentis vitae statum quo passibili corpori conjungitur, aliquid intelligere in actu nisi convertendo se ad phantasmata.

¹¹⁸ Kilwardby 1993 pages 12-15.

¹¹⁹ *ST* 1a q84 a6c. Secundum hoc ergo, ex parte phantasmatum intellectuallis operatio a sensu causatur. Sed quia phantasmata non suffiunt immutare intellectum possibilem, sed oportet quod fiant intelligibilia actu per intellectum agentem; non potest dici quod sensibilis cognitio sit totalis et perfecta causa intellectualis cognitionis, sed magis quodammodo est materia causae.

¹²⁰ *ST* 1a q78 aa3-4

for wonder if intellectual knowledge goes beyond sense knowledge.¹²¹

Leo Elders makes a similar comment:

St. Thomas repeatedly points out that although all our knowledge comes to us through the senses, nevertheless our intellect sees more in the data of sense experience than the senses themselves which present the data.¹²²

We will see what this “more” is shortly.

As we have just seen the agent intellect is required to abstract intelligible species from the phantasms. He discusses this abstraction in *ST* 1a q85 a1:

...this is what I mean by abstracting the universal from the particular, the idea from the sense images, to consider the nature of a species without considering individuating conditions represented by sense images.¹²³

He goes on to expand on this:

Another way of speaking is thus required, distinguishing between two kinds of matter, common and designated or individual: common would be, for instance, flesh and bones, and individual, this flesh and these bones. The intellect abstracts the species of a natural thing from individual sensible matter, but not from common sensible matter. Thus it abstracts the species of man from this flesh and these bones which do not pertain to the definition of the specific nature- they are, rather, as Aristotle says, parts of the individual. The specific nature therefore can be considered without them. However, the species of man cannot be abstracted by the intellect from flesh and bones as such.¹²⁴

Our intellect knows by means of intelligible species abstracted from the material particular. These intelligible species, Aquinas notes, are not what we know, but the means by which we know.¹²⁵ What we know is the likeness of the specific nature which the individual instantiates:

What is understood is in the one who understands by means of its likeness. This is the meaning of the saying that what is actually understood is identical with the intellect as actualised, in so far as a likeness of the thing understood is the form of the intellect, just as a likeness of a sensible reality is the form of a sense when actualised. Hence it does not follow that an abstracted species is what is actually

¹²¹ *ST* 1a q84 a6 ad3 Ad tertium dicendum quod sensitiva cognitio non est tota causa intellectualis cognitionis. Et ideo non est mirum si intellectualis cognitio ultra sensitivam se extendit.

¹²² Elders1993, page 12.

¹²³ *ST* 1a q85 a1 ad1 Et hoc est abstrahere universale a particulari, vel speciem intelligibilem a phantasmatis, considerare scilicet naturam speciei absque consideratione individualium principiorum, quae per phantasmata repraesentantur.

¹²⁴ *ibid* ad2 Et ideo aliter dicendum est, quod materia est duplex, scilicet communis, et signa vel individualis: communis quidem, ut caro et os; individualis autem, ut hae carnes et haec ossa. intellectus igitur abstrahit speciem rei naturalis a materia sensibili individuali, non autem a materia sensibili communi. Sicut speciem hominis abstrahit ab his carnibus et his ossibus, quae non sunt de ratione speciei, sed sunt partes individui, ut dicitur, et ideo sine eis considerari potest. Sed species hominis non potest abstrahi per intellectum a carnibus et ossibus.

¹²⁵ *ST* 1a q85 a2sc.

understood, but only that it is a likeness of it.¹²⁶

Another way to describe this is to say that our intellect knows directly the universal which the particular instantiates: the agent intellect abstracting the universal from the particular, as we saw in *ST* 1a q85 a1 ad1. However, we will avoid talking of universals for the moment as we will return to consider the issue of universals in a later chapter.

The above has been a brief, and indeed partial, summary of Aquinas' account how human beings acquire knowledge. Much has not been discussed: the role of the internal senses;¹²⁷ the various intellectual acts, while other facets of his account have been alluded to only in passing. Nevertheless, the interplay between the senses and the intellect in the enterprise of human knowledge is clear. Leaving aside, for the moment, how humans know we will now focus on what human beings know. In particular this will highlight the differences between 'knowledge' as it is predicated of God, the angels and humans. We will then return to Aquinas' account of the different acts of the human intellect involved in the process of knowing before looking at the fragmented nature of human knowledge.

ST 1a q89 a1c states a recurring theme of this chapter, one which it is useful to restate as we focus on what human beings can know:

In all intellectual substances the power of intelligence comes from the influence of divine light. Now this at its source, is one and simple, and the further intellectual creatures are from this origin, the more the light will be divided and diversified, as with lines radiating from a centre.¹²⁸

This passage is, of course, referring to Aquinas belief that the further one goes from the Godhead, the dimmer the intellectual light becomes, the more imperfect is the representation of the divine intelligence. Thus, with regard to material objects, God knows everything in its materiality and particularity through his essence. Angels, on the other hand, do not know the actual materiality of individual, material things, but do know them in their particularity, and not just their specific natures, through ideas infused into the angels by God.¹²⁹ Human beings, however, do not know singulars directly and immediately. *DV* q10 a5c gives a detailed description, in terms of the workings of the soul, of how the soul knows singulars. We will, however, look at the more general account which he gives in *ST* 1a q86 a1c.

Directly and immediately our intellect cannot know the singular in material realities.

The reason is that the principle of singularity in material things is individual matter,

¹²⁶ *ST* 1a q85 a2 ad1 Ad primum ergo dicendum quod intellectum est in intelligente per suam similitudinem. Et per hunc modum dicitur quod intellectum in actu est intellectus in actu, in quantum similitudo rei intellectae est forma intellectus; sicut similitudo rei sensibilis est forma sensus in actu. unde non sequitur quod species intelligibilis abstracta sit id quod actu intelligitur, sed quod sit similitudo ejus.

¹²⁷ *ST* 1a q78 a4

¹²⁸ *op. cit.* In omnibus enim substantiis intellectualibus invenitur virtus intellectiva per influentiam divini luminis. Quod quidem in primo principio est unum et simplex; et quanto magis creaturae intellectuales distant a primo principio tanto magis dividitur illud lumen et diversificatur, sicut accidit in lineis a centro egredientibus.

¹²⁹ cf above.

and our intellect -as said before- understands by abstracting species from this sort of matter. But what is abstracted from individual matter is universal. Therefore our intellect has direct knowledge only of universals.

Indirectly and by quasi-reflection, on the other hand, the intellect can know the singular, because, as mentioned before, even after it has abstracted the species it cannot actually understand by means of them except by a return to sense images in which it understands the species as Aristotle says.¹³⁰

In *ST* 1a q84 a7c he makes a similar point:

Therefore if it is actually to understand its proper object, then the intellect must needs turn to sense images in order to look at universal natures existing in particular things.¹³¹

This *conversio ad phantasmata*, turning to the sense images, should not ^{be} seen to suggest that this is something which is laborious for the human intellect to do. As Bernard Lonergan states:

....conversion of the possible intellect to phantasm is described by Aquinas neither as an activity nor as a shift in activity but as a natural orientation of the human intellect in this life: it results from the perfection of the conjunction of the soul to body, it consists in human intellect having its gaze turned to phantasms and inferior things; and in this present state of intellect is contrasted with that of the next life when conversion is not to phantasms nor bodies but to superior things and pure intelligibles.¹³²

Norman Kretzmann reiterates this point, that turning to the sense images is the natural orientation of our intellect, something which it does spontaneously and naturally.¹³³ Nor should the statement that we don't know particulars directly be taken to mean that there is some kind of time lapse or intellectual exercise that we must consciously undergo. There is no time lapse, we don't engage in intellectual gymnastics to know a particular thing; the lack of immediacy in knowing singulars refers to the internal workings of the soul. Much of what he has to say with regard to singulars also holds good with regard to what he says of our knowledge of contingent things.¹³⁴ The important point, however, is that in moving further down the intellectual hierarchy the intellectual power becomes dimmer, yet what it yields can still be called knowledge.

¹³⁰ *ST* 1a q86 a1c Dicendum quod singulare in rebus materialibus intellectus noster directe et primo cognoscere non potest. Cujus ratio est, quia principium singularitatis in rebus materialibus est materia individualis: intellectus autem noster, sicut supra dictum est, intelligit abstrahendo speciem intelligibilem ab hujusmodi materia. Quod autem a materia individuali abstrahitur est universale. unde intellectus noster directe non est cognoscitivus nisi universalium.

Indirecte autem, et quasi per quandam reflexionem, potest cognoscere singulare: quia, sicut supra dictum est, etiam postquam species intelligibiles abstraxit, non potest secundum eas actu intelligere nisi convertendo se ad phantasmata, in quibus species intelligibiles intelligit, ut dicitur.

¹³¹ Et ideo necesse est ad hoc quod intellectus actu intelligat suum objectum proprium, quod convertat se ad phantasmata, ut speculetur naturam universalem in particulari existentem.

¹³² Lonergan 1968, page 160.

¹³³ Kretzmann 1993, page 142.

¹³⁴ *ST* 1a q86 a3.

Other aspects of what human beings know exhibit our impoverished imperfect representation. We do not know infinities.¹³⁵ Nor, like the angels, can we know future things in themselves.¹³⁶ Unlike the angels,¹³⁷ however, the human soul cannot know itself by means of its own essence, the reason for this re-emphasises the dimness of the human intellectual light:

Now the human intellect only comes under the class of intelligible things as a potential being- in the way primary matter is in the class of sensible things- hence its name, *possible intellect*. Accordingly therefore, considered in its essence, it is potentially intelligent- thus it has, of itself, the power to understand but not to be understood except in so far as it is actualised....Therefore our intellect knows itself, not by its essence, but means of its activity.¹³⁸ [Editor's emphasis]

The soul cannot know itself directly. It can only know of itself when it understands something else. Like Hume, Aquinas would agree that all you find when you look for the self are bundles of perceptions. While angels can know material things, human beings in this life cannot know immaterial substances directly.¹³⁹ We can only rise to a limited knowledge of them from material things.¹⁴⁰ However, according to Aquinas the disembodied soul can know immaterial substances.¹⁴¹

In discussing the knowledge which the disembodied soul has, Aquinas appears to be caught between a rock and a hard place. On the one hand, he is at pains to protect his thesis, taken from Aristotle, that it is entirely natural for the human soul to know by means of the senses. While, on the other hand, trying to reconcile the thesis, much of it obtained from Scripture,¹⁴² that disembodied souls exist and have knowledge. *ST* 1a q89 a1sc sums up his dilemma:

On the other hand, Aristotle says that *if there is no way of acting proper to the soul, its separated existence is impossible*. But it does have a separated existence.

Therefore, it has a proper activity, above all that of understanding. Thus, when

¹³⁵ *ST* 1a q86 a2.

¹³⁶ *ST* 1a q86 a4.

¹³⁷ *ST* 1a q56 a1.

¹³⁸ *ST* 1a q87 a1c Intellectus autem humanus se habet in genere rerum intelligibilium ut ens in potentia tantum, sicut et materia prima se habet in genere rerum sensibilium: unde possibilis nominatur. Sic igitur in sua essentia consideratus, se habet ut potentia intelligens. Unde ex seipso habet virtutem ut intelligat, non autem ut intelligatur, nisi secundum id quod fit actu.....Non ergo per essentiam suam, sed per actum suum se cognoscit intellectus noster.

¹³⁹ *ST* 1a q88 a1sc.

¹⁴⁰ *ST* 1a q88 a2 ad1 Ad primum ergo dicendum quod ex rebus materialibus ascendere possumus in aliqualem cognitionem immaterialium rerum; non tamen in perfectam.

¹⁴¹ *ST* 1a q89 a2

¹⁴² The *sed contra* of almost every article in *ST* 1a q89 quotes from Scripture, especially the story of Dives and Lazarus, Lk 16:19-31.

existing apart from the body, it still understands.¹⁴³ [Editor's emphasis] Aquinas' solution to the dilemma, proposed by the above example, is to attribute to the disembodied soul a knowledge like that of the angels, but of an imperfect and confused nature.¹⁴⁴ This has several consequences for what the disembodied soul can know. We will not be distracted by what he has to say on this matter. Rather we will move on to look at the single most important feature of the human intellect as it exists in a soul united to a body.

We have seen that the human intellect is initially like a blank page. An obvious consequence of this is that human knowledge must start and grow: the human soul has an intellectual capacity which has to be fulfilled gradually.¹⁴⁵ The increase and growth of knowledge, as we shall see, is something of a laborious endeavour. Unlike the angels, who have a knowledge which tells them everything that can be known or predicated about what is the object of their knowledge,¹⁴⁶ our first knowledge of a thing is not a complete knowledge of the object. We have to reason to such complete knowledge. Aquinas writes:

...the human form of intelligence goes to its perfection in the knowledge of truth by a kind of movement, a discursive process of understanding, advancing from one thing to another. If the human mind were able, in seeing a given principle to see straight away all the conclusions that follow, it would never be involved in any such process. And this, in fact, is the condition of the angels; in the truths which their nature enables them to know they apprehend immediately all that such truths can possibly imply for them.

This is why they are called intellectual beings..... But the human soul in general we describe as 'rational,' to indicate its way of acquiring true knowledge by a discursive process, a way imposed by the dimness of intellectual light in it.¹⁴⁷

We will look at this 'rational' aspect of human intellection, and the goal of human

¹⁴³ Sed contra est quod Philosophicus dicit, *Si non est aliqua operatnionem animae propria, non contingit ipsam separari.* Contingit autem ipsam separari. Ergo habet aliquam operationem propriam; et maxime eam quae est intelligere. intelligit ergo sine corpore existens. [Editor's emphasis]

¹⁴⁴ For example in *ST* 1a q89 a3c Dicendum quod, sicut supra dictum est, anima separata intelligit per species quas recipit ex influntia divini luminis, sicut et angeli: sed tamen, quia natura animae est infra naturam angeli, cui iste modus cognoscendi est connaturalis, anima separata per huiusmodi species non accipit perfectam rerum cognitionem, sed quasi in communi et confusam. Sicut igitur se habent angeli ad perfectam cognitionem rerum naturalium per huiusmodi species, ita animae separatae ad imperfectam et confusam.

¹⁴⁵ *ST* 1a q55 a2c.

¹⁴⁶ *ST* 1a q58 aa3-4.

¹⁴⁷ *ST* 1a q58 a3c ... scilicet hominum, per quemdam motum et discursum intellectualis operationis perfectionem in cognitione veritatis adipiscuntur, dum scilicet ex uno cognito in aliud cognitum procedunt. Si autem statim in ipsa cognitione principii noti inspicerunt quasi notas omnes conclusiones consequentes, in eis discursus locum non haberet. Et hoc est in angelis; quia statim in illis quae primo naturaliter cognoscunt, inspiciunt omnia quaecumque in eis cognosci possunt.....Et ideo dicuntur intellectuales.....Animae vero humanae, quae veritatis notitiam per quemdam discursum acquirunt, 'rationales' vocantur. Quod quidem contingit ex debilitate intellectualis luminis in eis.

intellection: the grasp of truth, shortly when we discuss the various acts of the intellect that constitute the human search for knowledge. Two points ought to be made beforehand. First, all people regardless of intellectual ability seek knowledge, seek to write on that blank page which is their intellect. So a connected, and obvious, issue is that different people can know more than others.¹⁴⁸ Second, we will pay closer attention to one aspect of knowledge's growth: how the intellect stores the knowledge it acquires.

In *ST* 1a2ae q52 a1c Aquinas states:

It is now clear that since habits and conditions, as Aristotle says, are relational states they can possess intensive magnitude in two ways. First, in themselves, as we speak of greater and lesser health, and greater and lesser knowledge. Secondly in their possession by their possessor: an equal knowledge or an equal degree of health can be more fully possessed by one than by another, according to aptitude which each derives from nature or custom.¹⁴⁹

This extract is taken from a discussion on the growth of habits. We will clarify what a habit is shortly. As the human intellect acquires knowledge such knowledge is preserved in the possible intellect: it exists habitually in the intellect.

For the possible intellect is completely actualised with respect to the intelligible species when actually exercising its power: when it is not so doing, it is not in their regard completely actualised, but is a state between potentiality and act. And Aristotle remarks that, when this part, namely, the possible intellect, "has become each of its objects, it is said to be actually possessed of knowledge; and this happens when it is capable of acting on its own initiative, yet, even so, its condition is one of potentiality, in a certain sense, but not the same as before learning or discovering."¹⁵⁰

The human intellect can know many things, knowledge which exists as a habit of the intellect, but it can only think of one thing at a time.¹⁵¹ Anthony Kenny describes Aquinas' thought:

A human baby, not having yet learned language, is in a state of remote potentiality with regard to the use of language: he has a capacity for language learning that

¹⁴⁸ *ST* 1a q85 a7.

¹⁴⁹ *ST* 1a2ae q52 a1c Sic igitur patet quod, cum habitibus et dispositionibus dicantur secundum ordinem ad aliquid ut dicitur in *Physic.* VII, dupliciter potest intensio et remissio in habitibus et dispositionibus considerari. Uno modo, secundum se: prout dicitur major vel minor sanitas; vel major vel minor scientia quae ad plura vel pauciora se extendit. Alio modo, secundum participationem subjecti: prout scilicet aequalis scientia vel sanitas magis recipitur in uno quam in alio, secundum diversam aptitudinem vel ex natura vel ex consuetudine.

¹⁵⁰ *SCG* II 74. 16 Intellectus enim possibilis est in actu perfecto secundum species intelligibiles, quum considerat actu; quum vero non considerat actu, non est in actu perfecto secundum illas species, sed se habet medio modo inter potentiam et actum. Et hoc est quod Aristoteles dicit (*De Anima* III 8) quod "quum haec pars (scilicet intellectus possibilis) unaquaque fiat sciens dicitur secundum actum; hoc autem accidit, quum possit operari per seipsum. Est quidem similiter, et tunc potentia quodammodo; non tamen similiter atque ante addiscere aut invenire."

¹⁵¹ *ST* 1a q85 a4c.

animals lack, but he is not yet able to use language as an adult can. An adult who has learned English, even if he is not at this moment speaking English, is in a state of actuality in comparison with the child's potentiality: this was called first actuality [*ST* 1a q79 a10]. But a state of first actuality is still itself a potentiality: the knowledge of English is the ability to speak English and understand it when spoken to. The first actuality can be called a *habitus* or disposition, it is something halfway between potentiality and full blooded actuality [*ST* 1a q79 a6 ad3].¹⁵²

Aquinas' position on this matter is contrary to the opinion of Avicenna, which has already been mentioned, who said that intelligible species do not remain in the possible intellect except when they are being actually understood.¹⁵³ Kenny characterises Avicenna's position as:

He [Avicenna] concluded that when we reuse a concept, or recall a belief, we must go through the same process as when we first mastered the concept or acquired the belief.¹⁵⁴

The above may suggest that Avicenna holds that we have to relearn again and again whatever it is we wish to know. Avicenna's theory, however, is more subtle and nuanced than this. John Marenbon gives a fuller description than Kenny:

Avicenna argues that intellectual ideas- unlike sensible forms- cannot be stored. Learning is not a matter of putting information away in the mind, but of acquiring the ability to join the intellect with the *intelligentia agens*. The educated man is like someone with sick eyes which have been healed: if he looks at something he can see it; if he turns his gaze away, he can still decide to look at it again. The embodied soul does not generally have the power to receive forms from the *intelligentia agens* without preparation; learning brings the capacity to do so.¹⁵⁵

Aquinas' position is far simpler: the possible intellect has the ability to preserve knowledge-species:

For the recipient intellect is said to become things when it receives them as knowledge-forms. And from the fact that it holds these it has the power to think about them when it will, though it does not follow that it is always actually doing so.¹⁵⁶

Leaving aside this debate between Aristotle's mediaeval interpreters we now turn to the processes involved in the 'rational' endeavour of the human intellect. As we do so, we note one final aspect of the human intellect which sets it apart from all other intellects, divine or angelic; an aspect which illuminates the dimness of the human intellect like no other: it makes

¹⁵² Kenny 1993, page 53.

¹⁵³ Avicenna *De Anima* V, 6.(trans. Van Riet and Verbeke) 1972, vols IV-V, 1968.

¹⁵⁴ Kenny *op. cit.* page 52.

¹⁵⁵ Marenbon 1987, page 105

¹⁵⁶ *ST* 1a q79 a6c Dicendum enim intellectus possibilis fieri singula secundum quod recipit species singulorum. Ex hoc ergo quod recipit species intelligibilium habet quod possit operari cum voluerit, non autem quod semper operetur. Yet again we see that the translation is not entirely accurate; knowledge species are not mentioned until the second sentence.

mistakes. St. Thomas discusses this issue, among other places, in *ST* 1a q17 a3 and *ST* 1a q85 a6. For the moment it is sufficient to note this in passing. We will leave aside what it means for the intellect to be in error until the issue arises in our discussion of the acts of the intellect.

According to Aquinas there are three acts of the intellect that constitute the human search for knowledge: the first act, the grasp of quiddities; the second act, combining and separating; and the third act, reasoning.

We have seen that the intellect begins its process of understanding by abstraction from the *phantasmata*, the sense images. What is abstracted and grasped in the first act of the intellect will be discussed in a later chapter, as will the knowledge which results from this and from subsequent acts of the intellect. Consequently, here we will merely offer a sketch, no more than a *mise en scène*, of what Aquinas says.

According to St. Thomas what is abstracted is the intellect's proper object:

The object of the intellect, in its present state, is the whatness of material things which the intellect abstracts from sense images.¹⁵⁷

The grasping of this quiddity, or whatness, constitutes the first act of the intellect. Aquinas makes an important remark concerning this first act:

So the human intellect does not immediately, in first apprehending a thing, have complete knowledge; rather, it first apprehends only one aspect of the thing- namely, its whatness, which is the primary and proper object of the intellect- and only then can it understand the properties, accidents and relationships incidental to the thing's essence.¹⁵⁸

Grasping a thing's quiddity does not give us complete knowledge of the thing; rather it is knowledge of the thing at its most inchoate stage. The first act is but the initial step on the way to complete knowledge of the thing. Interestingly:

Now the proper object of the intellect is the whatness of things. Hence with respect to the whatness of things, speaking essentially, the intellect makes no mistakes.¹⁵⁹

There can never be a question of error with regard to the first act. Moreover, just as there can never be a question of falsity, there also cannot be a question of truth:

Accordingly truth is defined as conformity between intellect and thing.....Intellect

¹⁵⁷ *ST* 1a q85 a8c Dicendum quod objectum intellectus nostri, secundum praesentem statum, est quidditas rei materialis, quam a phantasmatis abstrahit.

¹⁵⁸ *ST* 1a q85 a5c Et similiter intellectus humanus non statim in prima apprehensione capit perfectam rei cognitionem; sed primo apprehendit aliquid de ipsa, puta quidditatem ipsius rei, quae est primum et proprium objectum intellectus; et deinde intelligit proprietates et accidentia et habitudines circumstantes rei essentiam.

¹⁵⁹ *ST* 1a q85 a6c Objectum autem proprium intellectus est quidditas rei. Unde circa quidditatem rei, per se loquendo, intellectus non fallitur. Aquinas does discuss error with regard to the first act, but such error is incidental, or as he says accidental, to the grasping of quiddities; the error does not pertain to the grasping of the quiddity as such; for example in *ST* 1a q85 a6c when the definition of a circle is applied to a triangle.

can know its own conformity to the thing known; yet it does not grasp that conformity in the mere act of knowing the essence of a thing.¹⁶⁰

Elsewhere we have seen that the goal of the intellect, knowledge, occurs when the intellect knows being as true. In the case of the angels we saw that truth was a feature of their innate knowledge: there was an assimilation between the form existing in the angelic mind and the form naturally existing in the object. In the case of the weaker human intellect, the intellect must judge this conformity before it can claim to know and possess truth. This judgment is constitutive of the second act of the intellect, at which we shall shortly look. Absence of this grasp of truth in the first act of the intellect is another indication of the inchoateness of the knowledge which Aquinas terms the apprehension of quiddities. Mindful of not wanting to preempt our discussion of the first act of the intellect, we will nonetheless take note of Norman Kretzmann's description of the first act of the intellect as the "alpha cognition", one which leaves us in a state of almost total ignorance, but nevertheless grounds the pursuit of knowledge.¹⁶¹

The word that Aquinas uses to describe the first act of the intellect is *intelligere*, to understand. In *De Veritate* q1 a12c he discusses this act of understanding, drawing together some aspects of *intelligere* that we have already seen and some which we have not:

The name intellect arises from the intellect's ability to know the most profound elements of a thing; for to understand means to read what is inside a thing. Sense and imagination know only external accidents, but the intellect alone penetrates to the interior and to the essence of a thing. But even beyond this, the intellect, having perceived essences operates in different ways by reasoning and inquiring. Hence intellect is taken in two senses. First it can be taken merely according to its relation to that from which it first received its name. *We are said to understand properly speaking when we apprehend the quiddity of things or when we understand those truths that are immediately known by the intellect, once it knows the quiddities of things. For example, first principles are immediately known when we know their terms and for this reason intellect or understanding is called a habit of principles.* The proper object of the intellect however is the quiddity of a thing. Hence just as the sensing of proper sensibles is always true, so the intellect is always true in knowing

¹⁶⁰ ST 1a q16 a2c Et propter hoc per conformitatem intellectus et rei veritas definitur.....Intellectus autem conformitatem sui ad rem intelligibilem cognoscere potest; sed tamen non apprehendit eam secundum quod cognoscit de aliquo quod quid est.

¹⁶¹ Kretzmann 1992, page 190 .

what a thing is, as is said in *De Anima* III. 6.¹⁶² [My emphasis]

He then moves on to discuss how error occurs in the intellect and how *intelligere* can be used in a broad sense to refer to all acts of the intellect such as opinion and reasoning. The above extract gives a powerful description of the intellect's power to grasp the quiddity of a thing, to grasp what is essential. This is the 'more' of which we saw Leo Elders speak earlier.¹⁶³ This passage from *DV* q1 a12c reiterates that the object which the intellect grasps in its first act is the proper object of intellect: something which it does unerringly. It is interesting to note that 'understanding' is also used to refer to the habit of grasping first principles. The relevant section has been highlighted. Apprehending a quiddity and our habitual capacity to grasp first principles are the same type of intellectual act. What we mean by this will have to be made clear because, as we have seen, Aquinas says that the understanding of a quiddity is not complete knowledge of a thing; yet, when he discusses the habit of understanding first principles he says that it is not merely a habit, but an intellectual virtue.¹⁶⁴ How can the same word, *intellectus*, be used to describe such inchoate knowledge, yet, in other circumstances, used to describe an intellectual virtue?

The first thing which must be done is clarify what is meant by the term 'intellectual virtue'. Understanding, like *scientia* and wisdom, is called an intellectual virtue because:

....they make us capable of good activity, namely to consider the truth, which is a good work for the intellect.¹⁶⁵

In the next article he reiterates this:

The virtues of of the speculative intellect are those which complete the speculative intellect for the consideration of truth...¹⁶⁶

Understanding helps the intellect attain its goal because by the habit of understanding the intellect immediately grasps the truth of principles. Similarly *scientia* is a virtue because by *scientia* the intellect attains its goal, the grasp of truth, with respect to different classes of things.¹⁶⁷ As an intellectual virtue understanding, like *scientia* and wisdom, is a habit of the

¹⁶² *DV* q1 a12c Dicendum quod nomen intellectus sumitur ex hoc quod intima rei cognoscit: est enim intelligere quasi intus legere: sensus enim et imaginatio sola exteriora accidentia cognoscunt; solus autem intellectus ad essentiam rei pertingit. Sed ulterius intellectus ex essentiis rerum comprehensis diversimode negotiatur ratiocinando et inquirendo. Nomen ergo intellectus dupliciter accipi potest. Uno modo secundum quod se habet ad hoc tantum a quo primo nomen impositum fuit; et sic dicitur proprie intelligere cum apprehendimus quidditatem rerum, vel cum intelligimus illa quae statim nota sunt intellectui notis rerum quidditatibus, sicut sunt prima principia, quae cognoscimus cum terminos cognoscimus; unde et intellectus habitus principiorum dicitur. Quidditas autem rei est proprie obiectum intellectus; unde, sicut sensus sensibilibus proprium semper est verus, ita et intellectus in cognoscendo quod quid est ut dicitur in III *De Anima* [com 26]

¹⁶³ cf page 39.

¹⁶⁴ *ST* 1a2ae q57 a2.

¹⁶⁵ *ST* 1a2ae q57 a1c ...inquantum faciunt facultatem bonae operationis quae est consideratio veri, hoc enim est bonum opus intellectus.

¹⁶⁶ *ST* 1a2ae q57 a2c Virtus intellectualis speculativa est per quam intellectus speculativus perficitur ad considerandum verum.

¹⁶⁷ *ibid.*

speculative intellect.¹⁶⁸ Close analysis of Aquinas' theory of habits is outwith the scope of this work. Nevertheless, in this discussion occasional reference has been made and will be made to *scientia* and understanding as habits, therefore we ought to be clear what we mean by the term 'habit'.

Aquinas is not at his most lucid when discussing habits. In different places he uses different but related terms to classify what he means by 'habit'. In *ST* 1a2ae q49 a1 Aquinas asks if habits are qualities. The *sed contra* of this article answers yes.

Aristotle says that a habit is a quality difficult to change.¹⁶⁹

Aquinas goes on to tell us that as a quality, a habit is a simple form.¹⁷⁰ Moreover, it is a form of a particular kind because it involves a relationship to something, either to the nature of the thing itself or to activities which follow from the nature:

But habits are states related to two things: namely, to natures, and to natural activities.¹⁷¹

In short, habits are modifications of a nature to help the nature better attain its end, which in the case of the human intellect is the grasp of truth. The reason for this is that there are many ways in which a nature, or an activity which follows from a nature, such as the human intellect, can achieve its end. Therefore, the nature or natural activity actually needs the habits to attain its end:

But if a form, like the soul, is such that it can act in more than one way, then it needs habits to bring it into the state appropriate to each action.¹⁷²

Thus, when discussing the necessity of habits he opens and concludes with the following remarks:

A habit, as was said above, is a good or a bad state of adaptation to the nature, operation, or goals of its possessor....

.....Because therefore, there are many beings whose natures and actions cannot be brought to completion without the presence of many elements which can be combined in various proportions, it follows that it is necessary that there should be

¹⁶⁸ *ibid* See also *ST* 1a2ae q55a1c.

¹⁶⁹ *ST* 1a2ae q49a1sc *Sed contra* est quod Philosophus dicit quod habitus est qualitas de difficili mobilis.

In his Blackfriars translation Anthony Kenny translates "qualitas de difficili mobilis" as "a quasi-permanent quality. While it conveys the meaning of Aquinas' definition, the introduction of "permanent" could lead to confusion.

¹⁷⁰ *ST* 1a2ae q54 a4sc *Sed contra*, habitus, cum sit qualitas quidem, est forma simplex.

¹⁷¹ *ST* 1a2ae q54 a2c Est autem habitus dispositio quaedam ad duo ordinata, scilicet ad naturam, et ad operationem consequentem naturam.

¹⁷² *ST* 1a2ae q49a4 ad1 Si autem sit talis forma quae possit diversimode operari, sicut est anima, oportet quod disponatur ad suas operationes per aliquos habitus.

such things as habits.¹⁷³

We could go on to explore further the relationship between habits, natures and abilities which follow from natures, but that would take us away from our task. It is sufficient to note that a habit is an adaptation of a thing's nature to help it attain its end and that a virtue denotes the determinate perfection of a power,¹⁷⁴ which, in the case of the intellectual virtues help the intellect to grasp the truth. Having clarified what an intellectual virtue is we return to our question: How can an intellectual act which results in such inchoate knowledge, in other circumstances also be called an intellectual virtue?

'Understanding' is used of both the grasp of a quiddity and the intellectual virtue because in both instances there is an immediate and unerring grasp of their objects. In the case of the first intellectual act the intellect immediately grasps the quiddity of a thing, it does not need to reason in order to get this object. In the case of the habit of first principles there is also an immediate grasp of its object, in this case the truth of the principles.

Now a truth can come into the mind in two ways, namely as known in itself, and as known through another. What is known in itself is like a principle, and is perceived immediately by the mind. And so the habit which perfects the intellect in considering such a truth is called 'understanding'; it is a firm and easy quality of mind which sees into principles.¹⁷⁵

The translation of the last sentence is rather free, Aquinas merely says that "it is the habit of principles," not that "it is a firm and easy quality of mind which sees into principles." Such free translation doesn't undermine the point we wish to make. This habit, this kind of understanding, is an intellectual virtue because it is an immediate grasp of the truth, and knowing the truth is the perfection of the intellect. Thus, both the grasp of quiddities and the habit of first principles are similar kinds of act, but in the case of the virtue what is immediately grasped is the truth. We will return to a consideration of the habit of grasping first principles when, in a later chapter, we come to look at *scientia*. The significant point, at the moment, is that Aquinas views understanding as a distinct form of human knowledge, different from other types of knowledge, or intellectual virtues. These other types arise from further operations of the intellect, to which we now turn our attention.

The first act of the intellect serves as the basis for the second act of the intellect. In this act the intellect understands the properties, accidents and relationships incidental to the thing's essence. The second act is also an act of judgment. Aquinas calls this second act by the

¹⁷³ *ST* 1a2ae q49 a4c Dicendum quod, sicut supra dictum est, habitus importat dispositionem quamdam in ordine ad naturam rei, et ad operationem vel finem eius, secundum quam bene vel male aliquid ad hoc disponitur.....

... Quia igitur multa sunt entium ad quorum naturas et operationes necesse est plura concurrere quae diversis modis commensurari possunt, ideo necesse est habitus esse.

¹⁷⁴ *op. cit.* Dicendum quod virtus nominat quamdam potentiae perfectionem.

¹⁷⁵ *ST* 1a2ae q57 a2c Verum autem est dupliciter considerabile: uno modo, sicut per se notum; alio modo, sicut per aliud notum. Quod autem est per se notum se habet ut principium, et percipitur statim ab intellectu. Et ideo habitus perficiens intellectum ad huiusmodi veri considerationem vocatur intellectus, qui est habitus principiorum.

peculiar name of “combining and separating.”¹⁷⁶ This second act is necessary because of the human intellect’s dimness as compared to the power of the intellects of God and the angels.

The intellects of God and the angels, on the other hand, are like incorruptible realities which do have their total perfection immediately and from the outset; thus the intellects of God and the angels have a completely perfect knowledge of a thing from the outset. Therefore, in knowing a whatness of a thing, they know at the same time all things that we are able to know by combining, separating and reasoning.¹⁷⁷

Lacking the intellectual light of the higher intelligences the human intellect must combine and separate; that is, joining subjects and predicates to form propositions, complexes isomorphic with reality. Aquinas uses the example “A man is white.” In reality, this consists of a substance:-man, and an accident:- white. Corresponding to this composition in reality is the intellectual combination in which a predicate is attributed to a subject as in the proposition “A man is white.”¹⁷⁸ In *Aquinas on Mind*, Anthony Kenny gives an illustration of the peculiar name which St. Thomas attributes to this act of the intellect. An example of combining would be the phrase “arsenic is poisonous.” The act of combining is positive because, Kenny says, arsenic and poisonous are composed, put together, in reality. An example of separating is “arsenic is not poisonous.” The act of separation is negative because it states that they are apart from each other in reality.¹⁷⁹

On the basis of such combinations and separations the intellect judges the correspondence of what it has formed to the thing as it exists in reality. That is, it judges if what it has formed is true or false. If what it has formed is true, then the intellect can, for the first time be said to know the truth and possess knowledge:

Intellect can know its own conformity to the thing known; yet it does not grasp that conformity in the mere act of knowing the essence of a thing. But when the intellect judges that the thing corresponds to the form of the thing which it apprehends, then for the first time it knows and affirms truth. This it does in the act of joining or separating concepts in judgment; for in every proposition some form signified by the predicate is either joined to some thing signified by the subject or separated from it.¹⁸⁰

¹⁷⁶ The technical phrase which Aquinas uses “*componendo et dividendo*” is sometimes translated as “composing and dividing” and “sometimes as affirming and denying”

¹⁷⁷ *ST* 1a q85 a5c Intellectus autem angelicus et divinus se habet sicut res incorruptibiles, quae statim a principio habent suam totam perfectionem. Unde intellectus angelicus et divinus statim perfecte totam rei cognitionem habet. Unde in cognoscendo quidditatem rei, cognoscit simul quidquid nos cognoscere possumus componendo et dividendo et ratiocinando.

¹⁷⁸ *ibid*

¹⁷⁹ Kenny 1993, page 163

¹⁸⁰ *ST* 1a q16 a2c Intellectus autem conformitatem sui ad rem intelligibilem cognoscere potest; sed tamen non apprehendit eam secundum quod cognoscit de aliquo quod quid est. Sed quando iudicat rem ita se habere sicut est forma quam de re apprehendit, tunc primo cognoscit et dicit verum. Et hoc facit componendo et dividendo; nam in omni propositione aliquam formam significatam per praedicatum, vel applicat alicui rei significatae per subjectum, vel removet ab ea.

But in affirming or denying one thing of another, intellect can be deceived in affirming of a thing whose essence it understands, something which does not follow from the essence or is incompatible with it.....falsity can be in the intellect not only because the intellect's knowledge is false, but also because the intellect knows falsity, just as it knows the truth.¹⁸¹

In *DV* q1 a2c, Aquinas tells us that things in this world are placed between two intellects: God's and ours. As creator, God is the measure of things in the world. Things in the world, on the other hand, are the measure of our knowledge of them. Our intellect must judge the correspondence between what it has formed and the thing in the world in order to determine if what it has formed is true. If what it has formed corresponds then the intellect knows and possesses truth. If correspondence is lacking then what it has formed is false and is not knowledge.

The judgments about material reality which constitute the second act of the intellect and which can be placed under the broad heading of perceptual knowledge will be a central focus of this work, as will the prior processes involved which enable us to make such judgments. In that discussion our analysis will show how some of these judgments can be knowledge. That, however, is for later. The important point here is that the intellect can judge what it has formed to determine whether it is true or false.

On the basis of the second act the intellect can undertake a third: reasoning. In several of the quotes scattered throughout this work we have seen St. Thomas make reference to the rational nature of human intellectual endeavour: a nature which is the result of the dimness of the human intellect, making it incumbent on humans to reason to a complete knowledge of a thing:

Accordingly, it [the human intellect] must combine one apprehension with another or separate them, or else it must go from one combination or separation to another (which is the process of reasoning).¹⁸²

The same point is made in *ST* 1a q79 a8c:

To understand is to apprehend quite simply an intelligible truth. To reason is to move from one thing understood to another, so as to know an intelligible truth. And so angels who, in keeping with their nature, have perfect possession of truth in its intelligibility, have no need to move from one thing to another, but simply, without intellectual process, grasp the truth of things, As Dionysius says. But men come to grasp intelligible truth by moving from point to point, as the same passage notes, and

¹⁸¹ *ST* 1a q17 a3c In componendo vero vel dividendo potest decipi, dum attribuit rei cuius quidditatem intelligit aliquid quod eam non consequitur, vel quod ei opponitur.....falsitas in intellectu esse potest non solum quia cognitio intellectus falsa est, sed quia intellectus eam cognoscit, sicut veritatem

¹⁸² *ST* 1a q85 a5c Et secundum hoc, necesse habet unum apprehensum alii componere vel dividere; et ex una compositione vel divisioni ad aliam procedere, quod est ratiocinari.

are therefore described as reasoning.¹⁸³

This process of reasoning can take on a systematic nature which utilises the first act of the intellect and results in complete knowledge of a thing: *scientia*. John Marenbon describes what happens:

When the mind has formed a proposition, it is able to begin the mental discourse which Aquinas describes in terms of syllogistic reasoning. This discourse requires the other strictly intellectual act of which men are capable besides apprehending quiddities: grasping the indemonstrable first principles of scientific reasoning.¹⁸⁴

Aquinas devotes his attention to this syllogistic reasoning and its result, *scientia*, in the *Commentary on the Posterior Analytics*. What is involved in this syllogistic reasoning and *scientia* will be important aspects of discussion which we will leave till later. We will however outline what Aquinas says about *scientia*. As we will see later, this matter of *scientia* is the focus of some contention with different commentators offering different interpretations. If we look at the *Commentary on the Posterior Analytics* we see that in *lectio* four of book one of this work *scientia* is defined in these terms:

..to know something scientifically is to know it completely, which means to apprehend its truth perfectly. For the principles of a thing's being are the same as those of its truth. Therefore the scientific knower, if he is to know perfectly, must know the cause of the thing known.....science is the sure and certain knowledge of a thing, whereas a thing which could be otherwise cannot be known with certainty, it is further required that what is scientifically known could not be otherwise.....That of which there is scientific knowledge must be something necessary. 185

The above extract makes a number of assertions about *scientia*: *scientia* is sure and certain knowledge, that to have *scientia* of an object is to have complete knowledge of that object which means that the knower must know the causes of the object. These are bold claims to make. Two factors contribute to these claims: the objects of *scientia* are universal and necessary, there is then no element of contingency with regard to the claims of *scientia*, the axioms of geometry which Aquinas often cites as examples of *scientia* indicate the necessity

¹⁸³ *op.cit.* Quod manifeste cognoscitur si utriusque actus consideretur. Intelligere enim est simpliciter veritatem intelligibilem apprehendere. Ratiocinari autem est procedere de uno intellecto ad aliud ad veritatem intelligibilem cognoscendam. Et ideo angeli, qui perfecte possident secundum modum suae naturae cognitionem intelligibilis veritatis, non habent necesse procedere de uno ad aliud, sed simpliciter et absque discursu veritatem rerum apprehendunt, ut Dionysius dicit. Homines autem ad intelligibilem veritatem cognoscendam perveniunt procedendo de uno ad aliud, ut ibidem dicitur, et ideo rationales dicuntur.

¹⁸⁴ Marenbon 1991, page 127.

¹⁸⁵ *op. cit.* A fuller version reads: Circa quod considerandum est quod scire aliquid est perfecte cognoscere ipsum, hoc autem est perfecte apprehendere veritatem ipsius: eadem enim sunt principia esse rei et veritatis ipsius. Oportet igitur scientiam si est perfecte cognoscens, quod cognoscat causam rei scitae....Quia vero scientia est etiam certa cognitio rei; quod autem contingit aliter se habere, non potest aliquis per certudinem cognoscere; ideo ulterius oportet quod id quod scitur non possit aliter se habere. Quia ergo scientia est perfecta cognitio, ideo dicit: cum causam arbitramur cognoscere; quia vero est actualis cognitio per quam scimus simpliciter, addit: et quoniam illius est causa quia vero est certa cognitio, subdit; et non est contingere aliter se habere.

which is indicative of *scientia*. The second factor is the methodology employed in acquiring *scientia*. *Scientia* is the result of a demonstrative syllogism whose premises are immediately known or are themselves the conclusions of other demonstrative syllogisms. In short, the sure and certain knowledge of *scientia* is the goal at which all human knowledge aims.

This complete knowledge is the result of reasoning from indemonstrable principles which are themselves known through an act of understanding. Understanding, as we have noted, is another intellectual virtue and type of human knowledge, different from *scientia*, but knowledge nonetheless. This brings us to the final element of our discussion of human knowledge: human knowledge because of the dimness of the human intellect exists in a fragmented fashion.

We have already mentioned this at the very beginning of this chapter, where in discussing if there is knowledge in God, we noted:

Perfections found in creatures in a state of division and multiplicity exist in God without division and in unity as we have said above. In man different objects of knowledge imply different kinds of knowledge: in knowing principles he is said to have 'understanding', in knowing conclusions 'science', in knowing the highest cause 'wisdom', in knowing human actions 'counsel', or prudence. But all these things God knows by one simple knowledge.....¹⁸⁶

This extract lists four of the five intellectual virtues that are found in the human soul. Art is the intellectual virtue which is omitted from this list.¹⁸⁷ Three of the virtues pertain specifically to the speculative intellect, as opposed to the practical intellect. These virtues of the speculative intellect are of interest to us because they indicate not only how the human intellect grasps truth in different ways, but also how these various grasps of truth constitute different types of knowledge. In *ST* 1a2ae q57 a2c, St. Thomas, as we have seen, writes:

Now a truth can come into the mind in two ways, namely, as known in itself, and as known in another. What is known in itself is like a principle, and is perceived immediately by the mind. And so the habit which perfects the intellect in considering such truth is called 'understanding'; it is a firm and easy quality of mind which sees into principles. A truth, however, which is known through another is understood by the intellect, not immediately, but through an inquiry of reason of which it is the finish. Here there can be two stages: first, a finish at an ultimate in some class; second, at an ultimate with respect to all human knowledge. And because the things which are known last from our standpoint are truths which are first and more evident in their nature, it follows that what comes last with respect to all human knowledge is

¹⁸⁶ *ST* 1a q14 a1 ad2. Ad secundum dicendum quod ea quae sunt divisim et multipliciter in creaturis, in Deo sunt simpliciter et unite, ut supra dictum est. Homo autem secundum diversa cognita habet diversas cognitiones: nam secundum quod cognoscit principia, dicitur habere intelligentiam; scientiam vero, secundum quod cognoscit conclusiones; sapientiam, secundum quod cognoscit causam altissimam; consilium vel prudentiam secundum quod cognoscit agibilia. Sed haec omnia Deus una simplici cognitione cognoscit.....

¹⁸⁷ *ST* 1a2ae q57 a3.

what is in reality the principal and most evident truth. Here is wisdom, which considers the highest and deepest causes, as is described in the *Metaphysics*. Rightly, then it judges and orders all things, because there can be no complete and embracing judgment except by going back to first causes. As to what is ultimate in this or that class of knowable truths, the mind is perfected by the habit of science. According to the various classes of truths which can be proved, there are various habits of the sciences, whereas there is but one wisdom.¹⁸⁸

Later we will look at Aquinas' treatment of *scientia*. As we will see there is an important relationship between *scientia* and understanding. Consequently, our treatment of *scientia* will necessarily entail a brief consideration of what he says regarding understanding.

When we looked at how 'knowledge' is predicated of God we saw that it referred to something simple and one. Angelic knowledge lacks the simplicity of divine knowledge, but is equally as different from human knowledge. In humans the term 'knowledge' is predicated of something which exists in the intellect in a fragmented way. Aquinas does allow that sometimes the terms 'understanding' and '*scientia*' can be used in wide sense to refer to any aspect of human intellection, for example:

He [Aristotle] says therefore, that not all scientific knowledge is demonstrative, i.e. obtained through demonstration, but the scientific knowledge of immediate principles is indemonstrable.....However, it should be noted that Aristotle is here taking science in a wide sense to include any knowledge that is certain, and not in the sense in which science is set off against understanding, according to the dictum that science deals with conclusions and understanding with principles.¹⁸⁹

Generally, however, the terms '*scientia*' and 'understanding' are used to refer to distinct forms of human knowledge. Eleanor Stump neatly describes the fragmented nature of human knowledge:

In fact, Aquinas explains *scientia* in a way which suggests that he has in mind a

¹⁸⁸ *op. cit.* Verum autem est dupliciter considerabile: uno modo, sicut per se notum; alio modo, per aliud notum. Quod autem est per se notum se habet ut principium, et percipitur statim ab intellectu. Et ideo habitus perficiens intellectum ad huiusmodi veri considerationem vocatur intellectus, qui est habitus principiorum. Verum autem quod est per aliud notum, non statim percipitur ab intellectu, sed per inquisitionem rationis, et se habet in ratione termini. Quod quidem potest esse dupliciter; uno modo, ut sit ultimum in aliquo genere; alio modo, ut sit ultimum respectu totius cognitionis humanae. Et quia ea quae sunt posterius nota quod nos, sunt priora, et magis nota secundum naturam, ut dicitur in I *Physic.* ideo id quod est ultimum respectu totius cognitionis humanae est id quod est primum et maxime cognoscibile secundum naturam. Et circa huiusmodi est sapientia, quae considerat altissimas causas, ut dicitur in *Meta.* Unde convenienter iudicat et ordinat de omnibus, quia iudicium perfectum et universale haberi non potest nisi per resolutionem ad primas causas. Ad id vero quod est ultimum in hoc vel in illo genere cognoscibilium, perficit intellectum scientia. Et ideo secundum diversa genera scibilium sunt diversi habitus scientiarum, cum tamen sapientia non sit nisi una.

¹⁸⁹ In *P.A.* I. 7. Dicit ergo primo quod non omnis scientia est demonstrativa, id est per demonstrationem accepta; sed immediatorum principiorum est scientia indemonstrabilis, id est non per demonstrationem accepta. Secundum est tamen quod hic Aristoteles large accipit scientiam pro qualibet certudinali cognitione, et non secundum quod scientia dividitur contra intellectum, prout dicitur quod, scientia est conclusionem et intellectus principiorum.

Porphyrian tree of cognition, with *scientia* occupying one of the branches, along with other species of cognition. *Scientia*, he says, is one of several dispositions (*habitus*) which are related to what is true. There are five such dispositions, and they all are types of cognition. Following, Aristotle, he lists the five as art, wisdom, prudence, understanding and *scientia*.¹⁹⁰

Stump's description of these different types of cognition, as she calls them, as constituting a Porphyrian tree is useful for it highlights that the different forms of knowledge are different species of the same genus: knowledge as it exists in the human intellect. Throughout this chapter we have sought to explore the analogical use of 'knowledge'. Faced with the reality of different types of human knowledge we must stress that 'knowledge' as it is applied to understanding or *scientia* is **not** used analogically.

These different types of knowledge are, as we have said, different species of the same genus. Aquinas in his *Commentary on Boethius' De Trinitate* discusses the division of the sciences into Metaphysics, Mathematical science and Natural Philosophy in much the same way. Each science has its own method and object, yet the term 'science' is applied univocally to each. They are different species of the same genus. Armand Maurer in the introduction to his translation of his work writes:

It will be noticed at once that St. Thomas adopts a pluralistic attitude toward scientific method; he does not propose one method for all the sciences. He recognises, of course, that they have a common method in that they follow the same basic laws of logic; but besides this he maintains that each science has its own special way of inquiring after truth.¹⁹¹

In a footnote Maurer comments that:

St. Thomas opposes the notion, which has become prevalent in our day, that science is essentially one, with the same scientific method. Descartes did much to introduce this conception into modern thought.¹⁹²

Descartes also did much to introduce a similar conception of knowledge, very different from the one we have ascribed to Aquinas: for Descartes 'knowledge' was not predicated analogically, nor was there such a thing as a genus of knowledge consisting of different species. But as L. M. Regis notes:

the realities expressed by the words, truth, knowledge and science must be granted a diversity that Kant and Descartes always refused them.¹⁹³

In the *Categories* we find Aristotle speaking about the species of knowledge. Discussing how the differentiae of species in one genus are not the same as those of another he writes:

If genera are different and co-ordinate, their differentiae are themselves different in

¹⁹⁰ Stump 1991, page 135.

¹⁹¹ Thomas Aquinas, *The Division and Method of the Sciences*. Translated by Armand Maurer, Toronto: The Pontifical Institute of Medieval Studies, 1963, page XXX

¹⁹² *ibid* page XXXI

¹⁹³ Regis 1959, page 72.

kind. Take as an instance the genus 'animal' and the genus 'knowledge'. 'With feet', 'two-footed', 'winged', 'aquatic', are differentiae of 'animal'; the species of knowledge are not distinguished by the same differentiae. One species does not differ from another by being two-footed.¹⁹⁴

Aristotle discusses the various uses of genus in Book V, *lectio* 28 of the *Metaphysics*. According to him there are four senses of genus. Aquinas, in his *Commentary on the Metaphysics* describes the sense which is relevant to this discussion:

In the fourth sense genus means the primary element given in a definition, which is predicated quidditatively, and differences are its qualities. For example, in the definition of man animal is given first and then two-footed or rational which is a certain substantial quality of man.¹⁹⁵

With regard to species we find Aristotle writing:

The things, then, which, are other in species must be in the same genus. For by genus I mean that one identical thing which is predicated of both and is differentiated in no mere accidental way, whether conceived as matter or otherwise. For not only must the common nature attach to the different thing, e.g. not only must both be animals, but this very animality must also be different in each (e.g. in the case equinity, in the other humanity) and so this common nature is specifically different for each from what it is for the other.¹⁹⁶

What can be said quidditatively of understanding and *scientia* is that both are knowledge. Yet, taking up from what Aristotle says in *Metaphysics* X 8, this common nature attaches to each in different ways. Understanding and *scientia* are specifically different from each other in two ways. Their difference constituted by their objects: understanding being the grasp of quiddities and *scientia* being knowledge of conclusions; and secondly they are differentiated, as we have seen, by their *modus operandi*.

Different as they are, one feature that understanding and *scientia* have in common is that they both involve assent. The intellect cannot fail to assent to what it understands or knows through scientific demonstration:

Among the acts of the intellect, some include firm assent without pondering- thus when someone thinks about what he knows scientifically or intuitively; thinking of that kind reaches a finished term. Other mental acts are marked by a pondering that is inconclusive, lacking firm assent, either because the act leans towards neither of the alternatives- the case with doubt; or because it leans to one alternative, but only tentatively- the case with suspicion; or because it decides for one side but with fear of the opposite- the case with opinion. The act of believing however, is firmly attached to one alternative and in this respect the believer is in the same state of mind as one

¹⁹⁴ Aristotle *Categories* Chapter 3.

¹⁹⁵ *In Meta* V 22. Quarto modo genus dicitur, quod primo ponitur in definitione et praedicatur in eo quod quid, et differentiae sunt eius qualitates. Sicut in definitione hominis primo ponitur animal, et bipes sive rationale quod est quaedam substantialis qualitas hominis

¹⁹⁶ Aristotle *Metaphysics* X 8.

who has understanding. Yet the believer's knowledge is not completed by a clear vision, and in this respect he is like one having a doubt, suspicion or an opinion. To ponder with assent is, then, distinctive of the believer; this is how his act of belief is set off from all other acts of the mind concerned with the true or the false.¹⁹⁷

This statement, taken from Aquinas' discussion on the act of faith, is most illuminating. According to him, the will must prompt the intellect to assent to the truths of faith. This is the only instance where the will is involved in assenting to what the intellect can claim to know. As the extract shows, in the case of understanding and *scientia*, the intellect firmly assents. There are also, as we can see from the extract, various other types of intellectual acts, such as opinion and doubt, which entail varying degrees of assent, and which, because of their inconclusiveness, are not counted as knowledge.

When we take this list of inconclusive intellectual operations and the list of conclusive intellectual operations, the acts which constitute the intellectual virtues, we notice that one intellectual act is unaccounted for, in fact it is not discussed at all: ordinary everyday perceptual knowledge, that which is the result of the second act of the intellect.

By perceptual knowledge we mean knowledge of material reality as outlined in *ST* 1a q84. That is: a knowledge of material reality which is immaterial, universal and necessary.¹⁹⁸ The type of knowledge expressed by propositions such as 'the traffic light is at red,' 'there is a dog.' The type of knowledge constituted by judgments about the common sense material objects of our world, judgments which can be true and at other times mistaken as in Descartes' tower example, Joseph Owens' salt and sugar example where one mistakes salt for sugar,¹⁹⁹ Goldman's Judy/Trudy example.²⁰⁰ As we will see in the next chapter, various contemporary authors have attempted to describe St. Thomas' epistemology in contemporary epistemological terms and, as part of these projects also attempt to give an account of St. Thomas' thoughts on perceptual knowledge. In that chapter we will set out what they say. In subsequent chapters, with reference to *ST* 1a q84 and other relevant passages, we will explore the issue of perceptual knowledge and its role in Aquinas' wider epistemology. Before we move on to these tasks we will recap what we have seen in this chapter.

¹⁹⁷ *ST* 2a2ae q2 a1c Actuum enim ad Intellectum pertinentium quidam habent firmam assensionem absque tali cogitatione, sicut cum aliquis considerat ea quae scit vel intelligit; talis enim consideratio jam est formata. Quidam vero actus intellectus habent quidem cogitationem informem absque firma assensione sive in neutram partem declinent, sicut accidit dubitanti; sive in unam partem magis declinent sed tenentur aliquo levi signo, sicut accidit suspicanti; sive uni parti adhaereant, tamen cum formidine alterius, quod accidit opinanti. Sed actus iste qui est credere habet firmam adhaesionem ad unam partem, in quo convenit credens cum sciente et intelligente; et tamen ejus cognitio non est perfecta per manifestam visionem, in quo convenit cum dubitante, suspicante et opinante. Et sic proprium est credentis ut cum assensu cogitet; et propter hoc distinguitur iste actus qui est credere ab omnibus actibus intellectus qui sunt circa verum vel falsum

¹⁹⁸ *ST* 1a q84 a1c.

¹⁹⁹ Owens 1992b, page 272.

²⁰⁰ Goldman 1986, page 46.

We began by stating that unlike modern philosophers, Aquinas used the term 'knowledge' analogically and not univocally. We then looked at what St. Thomas had to say about analogical usage. We saw that this was not without its internal difficulties. The bulk of this chapter has been devoted to considering how an analogical use of 'knowledge' allowed to Aquinas to use the same term of three radically different enterprises: divine knowledge, angelic knowledge and human knowledge. We looked at the main features of divine, angelic and human knowledge and we saw that the latter two are imperfect representations of the first. Mindful of *ST* 1a q88 a3c admonition that what is understood first by us is material reality and that we arrive at knowledge of God by way of creatures, we nevertheless saw that 'knowledge' as it is applied to God is the measure of all other uses of the term, because God has knowledge in the most perfect way.

In particular, we paid close attention to human knowledge. We saw again and again the consequences of the dimness of the human intellectual light: the need for the agent intellect; the necessity for reasoning in human intellectual endeavour; our tendency to make mistakes. We saw that human knowledge exists in a fragmented and divided manner. In our discussion of human knowledge we also acknowledged issues which will be the subject of fuller investigation in the following chapters: the first and second acts of the intellect, universals and *scientia*.

Despite the limitations of human intellectual ability we saw that human knowledge, like divine and angelic knowledge is fundamentally the intellect's grasp of being. A grasp of being which results in a likeness of the thing known existing in the knower. As Maritain puts it:

It [knowledge] shows itself to us as an immanent and vital operation, which essentially consists not in making, but in being, in being or becoming a thing-itself or others- otherwise than by the existence actuating a subject: which implies a much higher union than that of form and matter, composing a conjunction or *tertium quid*, and which also presupposes that the object known is intentionally made present in the faculty thanks to a species.....²⁰¹

Knowledge is the intentional existence of the object known in the knower by means of a knowledge-likeness:

A thing is known in itself when it is known through a likeness proper to the thing itself, co-terminus with the thing known.²⁰²

Unlike the divine and angelic intellects, the human intellect must judge if this likeness corresponds to the object of knowledge.²⁰³ If it does, the human intellect knows the truth, it possesses knowledge. In the case of God and the angels such a grasp of truth is inherent in

²⁰¹ Maritain 1937, page 142.

²⁰² *ST* 1a q14 a5c In seipso quidem cognoscitur aliquid, quando cognoscitur per propriam speciem adaequatam ipsi cognoscibili.

²⁰³ *ST* 1a q16 a2c.

their very act of knowing.²⁰⁴ The crucial feature, however, is this issue of likeness between what exists in the intellect and what exists in the world.

In the wake of Gettier, many contemporary epistemologists have sought a criterion that will turn a justified true belief into a knowledge claim. What ought to be apparent from our discussion in this chapter is that, for Aquinas, there is no magic criterion, or set of criteria, that will turn a belief claim into knowledge. We have seen that the bulk of his discussion focuses on knowledge, not belief. Belief is seen in the light of knowledge, as lacking something which knowledge has; in contemporary accounts knowledge is often seen in the light of belief, as belief transmogrified by some magic criterion.

In the coming chapters relatively little reference will be made to analogy, divine knowledge or angelic knowledge. The purpose of this chapter is to show how different and rich Aquinas' epistemology is. We ought to remember this difference as we now consider how some authors attempt to pigeonhole him into the categories of Descartes and more modern epistemologies. After considering them we will then return to explore some of the richness of St. Thomas.

²⁰⁴ *ST* 1a q16 a5c; q58 a5c.

2. *The Interpreters*

When the issue is adjudicated, however, it should be resolved with a clear recognition of Aquinas as holding not Foundationalism but rather an interesting theological externalism with reliabilist elements.

Eleonore Stump, "Aquinas on the Foundations of Knowledge"¹

Aquinas's elevation of this essentially metaphorical vocabulary to virtually technical status is testimony to the thoroughly internalistic nature of his theory of knowledge. Moreover, Aquinas's explicit commitment to the reliability of our cognitive faculties has no tendency to show that his view is reliabilist or externalist.

Scott MacDonald, "Theory of Knowledge"²

Roderick M. Chisholm once remarked that for some epistemological terms (he was discussing foundationalism and coherentism) there was a lack of agreement on what the terms actually meant, and for that reason we would perhaps be wise to avoid them.³ The various epistemological terms, used in the above descriptions of St. Thomas' theory of knowledge, also vary in meaning depending on which epistemologist is using them. Such fluidity in meaning, however, cannot account for the radically different, in fact, opposing interpretations offered by Stump and MacDonald. This chapter will outline their interpretations and those of two other well known scholars, Norman Kretzmann⁴ and James F. Ross.⁵ Kretzmann, like Stump, gives an externalistic and reliabilist interpretation of Aquinas, whereas, Ross appears to take the side of internalism. In this chapter we do not intend to offer much criticism of the various interpretations; deeper critical appraisal will be

¹ Stump 1992, page 158.

² MacDonald 1993, page 186.

³ Chisholm 1977. page 63.

⁴ Kretzmann 1992.

⁵ Ross 1984.

left for later chapters when we examine the different matters which arise from our consideration of the knowledge of which *ST* 1a q84 speaks.

Mindful of Chisholm's remark concerning the lack of agreement surrounding the use of different epistemological labels we will begin this discussion by defining, for the purposes of this paper, what is meant by the terms externalism and internalism, foundationalism and reliabilism. In order to give a flavour of each position, we will also briefly describe contemporary versions.

a. Contemporary categories

We will begin by looking at internalism and foundationalism. John Pollock describes foundationalism in the following way:

Foundation theories are distinguished from other doxastic theories by the fact that they take a limited class of "epistemologically basic" beliefs to have a privileged epistemic status. It is supposed that basic beliefs do not stand in need of justification—they are "self-justifying". Nonbasic beliefs, on the other hand, are all supposed to be justified by appeal to basic beliefs. Thus the basic beliefs provide a foundation for epistemic justification.⁶

Pollock's outline captures the principle elements and common characteristics of foundationalist theories: there is a set of basic beliefs whose justification is not inferred from other beliefs. These basic beliefs are immediately justified, or to use Pollock's term, self-justifying; they carry their own justification. These self-justifying beliefs form the basis, the foundation, from which all other beliefs are justifiably inferred. Thus a sketch of a foundational theory would appear something like D is justified on the basis of C which is justified on the basis of B which in turn is justified on the basis of A which is self-justified. If A weren't self-justified the process of justification would go on and on constituting an infinite regress and so undermining any claim to knowledge.

In his description Pollock says that "Foundation theories are distinguished from other doxastic theories." What does he mean by this? Clarification of this statement will shed light on the relationship between foundationalism and internalism.

In *Contemporary Theories of Knowledge* Pollock distinguishes between doxastic theories of knowledge and non-doxastic theories of knowledge. According to Pollock a doxastic theory of knowledge views the justification of a belief as solely a function of the beliefs one holds.⁷ He writes:

Doxastic theories take the justifiability of a belief to be a function exclusively of what else one believes.⁸

⁶ Pollock 1986, page 26.

⁷ *ibid* page 19.

⁸ *ibid* page 93.

Foundationalism is not the only doxastic theory Pollock outlines. He also classifies coherence theories as doxastic. According to him:

A coherence theory is any doxastic theory denying that there is such an epistemologically privileged subclass of beliefs. Coherence theories insist that all beliefs have the same fundamental epistemic status, and the justifiability of a belief is determined jointly by all of one's beliefs taken together.....whether a belief is justified is how it 'coheres' with the set of all your beliefs.⁹

Coherence theories, as classified by Pollock, are like foundational theories in focussing solely on beliefs, but unlike foundations theories all the beliefs have the same epistemic status, there is no privileged class of beliefs bestowing justification on others. Such doxastic theories are internalist theories: beliefs are, after all, internal states. However, not all internalist theories are doxastic, some are non-doxastic.

Nondoxastic theories hold that justification is not merely a matter of what other beliefs one holds, other internal states are also important in determining epistemic justification. The theory which Pollock himself develops, and which we'll sketch below, is a non-doxastic internalist theory. Of internalism he writes:

Internalist theories insist that although justifiedness of a belief is not a function exclusively of one's beliefs, it is a function exclusively of one's internal states, where the latter include both beliefs and non-doxastic states. Internal states are, roughly, those to which we have direct access.¹⁰

Internalist theories see epistemic justification as determined by the subject's internal states; whether or not the subject is cognitively aware of such justification is not particularly important. The important issue, for our purposes, is the emphasis placed on internal states in determining epistemic justification, as opposed to justification being derived from conditions external to the subject. Of this type of internalist theory foundationalism is one variety.

John Pollock labels his non-doxastic internalist theory Direct Realism, here we offer no more than a sketch of it. He describes direct realism as:

the view that perceptual states can licence perceptual judgments about physical objects directly and without mediation by beliefs about perceptual states. Direct realism can have a structure very much like a foundations theory.¹¹

In Pollock's account of direct realism justification is not simply determined by what beliefs one holds, it is also determined by other internal states such as perception and memory.

Pollock defines internal states as:

those states that are directly accessible to the mechanisms in our central nervous system that direct our reasoning. The sense in which they are directly accessible is that access to them does not first require us to have beliefs about them.¹²

⁹ *ibid* page 67.

¹⁰ *ibid* page 91.

¹¹ *ibid* page 91.

¹² *ibid* page 134.

The non-doxastic nature of direct realism aside, as Pollock acknowledges, there is a great deal of similarity between direct realism and a foundationalist account of justification:

Direct realism can adopt the same basic structure of epistemic justification as does the foundations theory.... with the exception that epistemologically basic beliefs are replaced by “epistemologically basic mental states,” the latter being mental states that constitute reasons for various kinds of judgments.¹³

In both of the preceding extracts from *Contemporary Theories of Knowledge*, Pollock makes reference to our reasoning. This is an central aspect of Pollock’s account. Pollock defines epistemic justification as follows:

A person’s belief is justified if and only if he holds it in conformance to his epistemic norms.¹⁴

Epistemic norms are, in turn, defined in terms of our capacity to reason:

We know how to reason. That means that under various circumstances we know what to do in reasoning. This can be described equivalently by saying that we know what we should do. Our epistemic norms are just the norms that describe this procedural knowledge...They [epistemic norms] describe an internalized pattern of behaviour that we automatically follow in reasoning, in the same way that we automatically follow a pattern in bicycle riding. This is what epistemic norms are .

They are internalized norms that govern our reasoning.¹⁵

Pollock sees epistemic norms as action guiding norms grounded in our ability to reason. They can be observed in reasoning, they are just part of what it is to be human, in fact such norms may well be innate.¹⁶ This account of epistemic norms leads Pollock to describe direct realism as a Naturalistic Internalism:

Reasoning is a natural process. It is something we know how to do. To say that we know how to do it is to say that it is governed by norms. Our epistemic norms are, by definition, the norms that actually govern our reasoning. This, I claim, is a naturalistic definition of ‘epistemic norm’.¹⁷

There seems to be echoes of Hilary Kornblith’s description of naturalised epistemology in the above account of epistemic norms.¹⁸ According to Kornblith the descriptive has a

¹³ *ibid* page 176.

¹⁴ *ibid* page 168.

¹⁵ *ibid* page 131 The parallel drawn to bicycle riding is surely problematic. If Pollock really intends for it to hold then it would seem that there must be a stage akin to learning to ride a bike when we must methodically practise reasoning using our epistemic norms, as we do when learning to cycle: “don’t lean too far to the right, keep your balance and so on.” Only by doing this can we internalise the norms and then do it automatically. But, this is manifestly not the case. Ultimately epistemic norms are not like bicycle riding norms, bicycle riding norms govern an acquired skill, epistemic norms pertain to a natural. human activity. As Alvin Plantinga points out you can go off bike riding for lent, but you can’t do the same with reasoning.

¹⁶ *ibid* page 132.

¹⁷ *ibid* page 168.

¹⁸ Kornblith 1985, page3ff.

bearing on the normative, thus the way we arrive at our beliefs is the way we ought to arrive at our beliefs: what we do is what we ought to be doing. Chisholm in this regard talks of the normative supervening on the non-normative.¹⁹ In Pollock's naturalist account the norms are implicit in our reasoning process.

Crucially for Pollock, these action guiding norms which we use in reasoning appeal to non-doxastic internal states such as perception, they are not merely applicable to our doxastic states.²⁰

Epistemic norms must be able to appeal directly to our being in perceptual states and need not appeal to our having beliefs to that effect. In other words, there can be "half-doxastic" epistemic connections between beliefs and non-doxastic states that are analogous to the "fully epistemic" connections between beliefs and beliefs that we call reasons. I propose to call the half-doxastic connections 'reasons' as well, but it must be acknowledged that this is stretching our ordinary use of the term 'reason'.²¹

This concurs with what we saw earlier when he said that internal states are directly accessible in the sense that we don't have to form beliefs about them to be aware of them. Moreover, reasoning from the perceptual state appeals to that state rather than a belief about its propositional content, or as he puts it, the reasons from which justification is inferred are:

the propositions believed rather than the states of believing the propositions.²²

Thus, in Pollock's theory epistemologically basic beliefs are replaced by "epistemologically basic mental states."²³ In Pollock's version of direct realism both doxastic and non-doxastic mental states constitute the grounds for the judgments which we make. In some cases, he notes we can form beliefs about our perceptual states.²⁴ More usually, however, we don't form beliefs about perceptual states before making other judgments, rather we make judgments on the basis of those non-doxastic states. In his naturalistic internalism, it is these epistemologically basic mental states which are the "reasons" for our beliefs.

We have offered no more than a sketch of his theory, brushing over some of its more nuanced aspects. Pollock has noted the close connection between direct realism and foundationalism. In many respects, his theory is a reaction to what he considers to be insurmountable problems facing foundationalism. These problems, however, may have more to do with Pollock's description of foundationalism than foundationalism itself: his classification of foundationalism as a doxastic theory.

According to Pollock, as a doxastic theory foundationalism has trouble giving a coherent

¹⁹ Chisholm 1989 pages 60 and 61.

²⁰ Pollock 1986, page 137.

²¹ *ibid* page 176.

²² *ibid* page 176.

²³ *ibid* page 177.

²⁴ *ibid* page 177.

account of the epistemic status of some internal states, particularly those arising from perception and memory: beliefs which are the result of perception can often be mistaken.²⁵ Pollock notes that foundationalists often attempt to avoid this problem by going for what he terms a weaker kind of basic belief, a belief about the perceptual state one has, such as sensing redly; this type of basic belief makes no commitment to the external cause of that state: that there is something red causing me to sense in the way I do. For Pollock the foundationalist's tactic in restricting basic beliefs to perceptual states merely undermines foundationalism further because, as he states:

I think it is a mistake to suppose that the evidence of our senses comes to us in the form of beliefs. We rarely have any beliefs at all about how things appear to us. In perception, the beliefs we form are almost invariably beliefs about the objective properties of physical objects- not about how things appear to us. If only the latter are candidates for being epistemologically basic, then it follows that perception does not usually provide us with epistemologically basic beliefs and hence perceptual knowledge does not derive from epistemologically basic beliefs in the way envisaged by foundations theories.²⁶

Bearing Pollock's criticisms in mind we now turn to a foundationalist theory.²⁷

In the various editions of *Theory of Knowledge* and, among other works, *The Foundations of Knowing* Roderick Chisholm develops what he himself terms a foundational account of knowledge²⁸ which we will sketch in order to give a flavour of a foundationalist theory. As we do so we will also consider the aforementioned criticisms of Pollock: is it the case that a foundationalist such as Chisholm holds that we have beliefs about our perceptual states and that these beliefs constitute that which is epistemically basic? In other words, is foundationalism, as Chisholm describes it, purely doxastic?

The first comment that we must make about Chisholm's theory is that it is very thorough and rigorous, the result of years of thought and reflection. It is also complicated. The foundationalist account that Chisholm offers initially appears to be in line with what we have seen Pollock characterising as the weaker version of foundationalism: i.e. one that focuses on perceptual states rather than the causes of those states in the external world. Crucially, however, we will see that Chisholm does not hold that one must have beliefs about perceptual states in order for them to serve a privileged epistemic role. Furthermore,

²⁵ *ibid* page 27.

²⁶ *ibid* page 61.

²⁷ Pollock also makes a sustained attack on coherence theories. While such theories do have their own problems, and indeed while Ross alludes to coherentism in his description of Aquinas' epistemology (as opposed to MacDonald's who calls Aquinas a foundationalist) we will pass over Pollock's attack, a sketch of a contemporary coherentist theory and any response such coherentist might make to Pollock: it is enough just to have given a description of coherence earlier. In our outline of Chisholm's foundationalism we will show that Pollock's description of doxastic theories may not be water tight, this will be an interesting enough digression into contemporary epistemology.

²⁸ Chisholm 1982, page 3; Chisholm 1989, page 61.

Chisholm develops an account of perception which, as we shall see, allows a subject to take it as evident that there is something, i.e. an external object appearing to him. It amounts to a complex theory.

According to Chisholm certainty can be attributed to propositions about the mental life which he calls self-presenting, and to some *a priori* metaphysical and logical axioms.²⁹ In the structure of empirical knowledge, the role of the self-presenting is crucial, or to put it another way, foundational. Self-presenting properties are exhibited by various aspects of the mental such as dreaming, hoping, desiring; in fact, “any property which from the fact that you have it, it follows logically that you are thinking.”³⁰ The awareness of such self-presenting properties is indubitable, that is, if we are having them then we cannot doubt that we are having them.³¹ The self-presenting can be said to be directly evident³² and moreover:

The self-presenting would seem to be the closest we can come to that which constitutes its own justification.³³

Every self-presenting property, then, is a property that is such that, if while having it, you *consider* your having it, then you will *believe* yourself to have it.³⁴

[Author’s emphasis]

If the property of being F is self-presenting, if S is F, and if S believes himself to be F, then it is certain for S that he is F.³⁵

Self-presenting properties are self-justified and directly evident; if the subject considers them not only will he believe he is having them, it is certain for him that he is having them. ‘Being evident’ and ‘certainty’ are important in Chisholm’s epistemology. In *The Foundations of Knowing* he clarifies the relationship between the self-presenting and these two concepts:

I have not *defined* self-presenting properties by reference to evidence and certainty. But the presence of such properties is also evident to the subject who has them. And, if we think of certainty as constituting the highest degree of epistemic justification, then we may say that a person’s self-presenting properties *are* objects of certainty for that person.³⁶ [Author’s emphasis]

This clarification, that the self-presenting is not defined in terms of these two concepts, will be important below when we consider the foundational role of the self-presenting.

The self-presenting are not defined by reference to evidence because what is evident is

²⁹ Chisholm 1989, page 12.

³⁰ *ibid* page 19.

³¹ Chisholm 1982, page 11.

³² *ibid* page 12.

³³ *ibid* page 25.

³⁴ Chisholm 1982, page 11.

³⁵ Chisholm 1989, page 62.

³⁶ Chisholm 1982, page 11.

defined in terms of the self-presenting and not vice versa:

everything that is evident for any particular subject has as a basis or foundation that is entailed by some property that is self-presenting to that subject.³⁷

We will clarify this issue shortly when we consider, for Chisholm, what is evident but not self-presenting. For the moment we note that in his foundational scheme the self-presenting are of central importance because it is the self-presenting, as opposed to the directly evident that forms the foundation of what is not directly evident. Chisholm states this explicitly:

Is there a sense in which the self-presenting may be said to justify that which is not directly evident? It is the self-presenting,... and not the directly evident, that may be said to justify that which is not directly evident.³⁸

Importantly we must note that if the subject reflects on such self-presenting properties then he will believe that he has them, he will be certain that he has them. This is the sense in which the self-presenting is not defined in terms of certainty. However, the subject doesn't have to reflect on them for them to perform the epistemically basic role of justifying what is not directly evident, he need not consider that he is having such and such a self-presenting property. In other words, for the self-presenting to perform an epistemically foundational role the subject does not need to form a belief about the self-presenting. Thus, on this reading the self-presenting are non-doxastic states and so *contra* Pollock, we appear to have a non-doxastic foundations theory. I say appear because it is at this point that we have to address the complexity of Chisholm's theory.

Among what is evident Chisholm wants to include:

.....propositions about the external things we perceive and propositions about what we remember.³⁹

In both *The Foundations of Knowing* and *Theory of Knowledge* Chisholm attempts to show how propositions about external things can be evident and thus constitute some of the basic beliefs of a foundational theory. Among the self-presenting properties that one has, Chisholm includes the experience of "being appeared to."⁴⁰ Chisholm is very careful to clarify what he means by this:

The expression 'being appeared redly to' as we shall interpret it, must *not* be interpreted as having the same sense as any of the following expressions, 'being appeared to by something that is red,.... 'Being appeared redly to'... refers to a property that is self-presenting....That is to say, being appeared redly to is necessarily such that, if a person is appeared redly to and if he considers his being appeared redly to, then he will attribute to himself the property of being appeared redly to.⁴¹ [Author's emphasis]

No commitment to the awareness of external objects is given by such self-presenting

³⁷ *ibid* page 26.

³⁸ Chisholm 1982,page 25.

³⁹ Chisholm 1989, page 74.

⁴⁰ Chisholm 1982, page 18.

⁴¹ *ibid* page 16.

appearance statements. Propositions regarding the external objects of perception only acquire a positive epistemic status for Chisholm once he has formulated his epistemic principles; of which the fundamental principle is the criterion of what is certain. Both the *Theory of Knowledge* and *The Foundations of Knowing* contain thorough accounts of his epistemic principles, the details of which need not detain us here.⁴² According to Chisholm propositions about perceptual objects can be evident because his epistemic principles show that it is grounded on the self-presenting and secondly, it is something which the subject has reflected on, that is, formed a belief about:

In other words, if a person is appeared redly to, then it is evident to him that there *is* something that appears red to him--provided he considers the question whether something is appearing red to him and provided he has no reason to suppose that it is *not* the case that something appears red to him.⁴³ [Author's emphasis]

Propositions regarding perceptual objects are doxastic states. Crucially, the person does not form a belief about the self-presenting property of being appeared to: this non-doxastic state grounds the doxastic. In working through the various levels of epistemic appraisal Chisholm also hopes to avoid Pollock's first criticism of foundationalism, concerning the unsuitability of perceptual beliefs to be epistemically basic beliefs. Chisholm has tried to show how such beliefs can be evident.

We said earlier that Chisholm, in his account of the self-presenting, appears to offer, contrary to Pollock's sketch of foundationalism, a non-doxastic account of foundationalism. We used the word "appears" because of the complexity of Chisholm's theory. What Chisholm has to say on directly evident beliefs about perceptual objects takes us to the heart of this complexity. If they serve as epistemically basic beliefs then Chisholm's foundationalism is a doxastic theory. In the second edition of *Theory of Knowledge* such beliefs are given a privileged epistemic role:

What, then, of our justification for those propositions that are indirectly evident? We might say that they are justified in three different ways. (1) They may be justified by certain relations that they bear to what is *directly* evident. (2) They may be justified by certain relations that they bear to *each other*. And (3) they may be justified by *their own nature*, so to speak, and quite independently of the relations they bear to anything else. [Author's emphasis]⁴⁴

However, in *The Foundations of Knowing* ⁴⁵ Chisholm indicates that he would replace 'directly evident' with 'the self-presenting' in the above passage. Thus, despite what he says regarding beliefs about perceptual objects being evident, the central epistemic foundation is the self-presenting. Justification of all other propositions follow from these non-doxastic states. Note however, that for Chisholm the self-presenting is not the sole cause of the justification of one's beliefs. Justification is also the result of the relations which

⁴² Chisholm 1989, page 62ff and Chisholm 1982, page 24ff.

⁴³ Chisholm 1982 page 17.

⁴⁴ Chisholm 1977, page 63.

⁴⁵ Chisholm 1982, page 26.

exist between beliefs, justified beliefs concur with each other. Hence, there is also an element of coherentism in Chisholm's account. Nevertheless, it is the self-justified self-presenting which constitutes the evident as the foundation of the structure of empirical knowledge, with the indirectly evident deriving its justification from what is self-presenting and evident.

It is not the object of this chapter to offer a critique of Chisholm or Pollock. However, it does seem that Chisholm's foundationalism offers a rebuke of Pollock's criticism and description of foundationalism. Chisholm has proposed a foundationalist theory which avoids the two main charges Pollock makes against foundationalism: that we must form beliefs about our perceptual states, and that beliefs about perceptual objects can't have a privileged epistemic status. We will see that in Scott MacDonald's foundationalist interpretation of Aquinas' theory of knowledge propositions concerning the objects of perception will play an important role. Doubtless there are versions of foundationalism around which do encounter the problems that Pollock suggests besets all foundationalist theories. Unfortunately for him, they don't seem to beset Chisholm's. At the end of the day Pollock's theory is more similar than dissimilar to Chisholm's. Deeper discussion of this issue is outwith the bounds of this chapter. Here we have merely sketched two versions of contemporary foundationalist and internalist theories in order to give a flavour of these epistemological positions, noting that foundationalism can be a non-doxastic theory. For our purposes we will take foundationalism to be the theory that there is a privileged set of internal states, some doxastic, but not all, which are immediately justified. The immediately justified, or self-justifying, beliefs form the foundation from which the justification of all other beliefs is inferred. Now we must turn our attention to another epistemological position, one which Pollock derided as "having nothing to contribute to the solution to traditional epistemological problems":⁴⁶ externalism.

To fully appreciate externalism and its radically different approach to the questions of epistemology a few words must first be said about Naturalised Epistemology. We have already alluded to this issue when, in discussing Pollock's naturalised internalism, we made reference to Hilary Kornblith's description of the relationship between the descriptive and normative dimensions of naturalised epistemology. In our consideration of the above internalist accounts of justification much attention has been given to normative questions, for example, what makes a proposition evident or what is an epistemic norm? Fulfilment of such norms constitutes knowledge. Thus epistemology, as described by the internalist, is very much a 'first philosophy', a normative discipline, determining what can and cannot count as knowledge. According to the naturalised epistemologist, however, the internalist programme is sterile.⁴⁷ Epistemology is better seen as part of the enterprise of science because fundamentally the questions of epistemology are questions about the human subject and the world: epistemology is thus naturalised, it is reduced to psychology. Quine, in his *locus*

⁴⁶ Pollock 1986, page 149.

⁴⁷ Kornblith 1985, page 4. Kornblith is here specifically referring to foundationalist programmes.

classicus on the subject writes:

Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz, the human subject. This human subject is accorded a certain experimentally controlled input, certain patterns of irradiation in assorted frequencies, for instance- and in the fullness of time the subject delivers as output a description of the three dimensional external world and its history. The relation between the meager input and the torrential output is a relation that we are prompted to study for somewhat the same reasons that always prompted epistemology; namely, in order to see how evidence relates to theory and in what ways one's theory of nature transcends any available evidence.⁴⁸

The externalist accounts which follow share much in common with Quine's description: the role of, as Quine calls it, the meagre input, in our belief forming process; in contrast little attention is paid to internal states such as "being appeared---- to". Psychology's role in investigating the relationship between this input and the torrential output is also important in these externalist accounts. Unlike Quine's description the accounts which we will look at maintain the normative dimension of epistemology.

What then is externalism? In the index to Chisholm's *Theory of Knowledge* the entry for externalism reads: "see internalism." In the index to *Warrant: The Current Debate*⁴⁹ under the entry for externalism Alvin Plantinga does at least give a page reference. Turning to the page in question we find that he writes:

I shall think of externalism as the complement of internalism; the externalist holds that it is *not* the case that in order for one of my beliefs to have warrant for me, I must have some special or privileged access to the fact that I have warrant, or to its ground.⁵⁰ [Author's emphasis]

John Pollock similarly includes a reference to internalism in his description of externalism.⁵¹ If such giants as these cannot give a definition of externalism without referring to internalism then we will feel free to do likewise. We will take an externalist theory to hold that epistemic justification is not determined by the internal states, doxastic or otherwise, of a subject, but is determined by factors external to the subject's internal states; moreover, these justifying factors need not be cognitively accessible the subject. Alvin Plantinga notes that while externalism seems to be the new kid on the epistemological block, it has actually been the dominant epistemological tradition in western philosophy.⁵² Internalism has merely enjoyed supremacy over the last three hundred years. A supremacy now questioned in the light of Gettier⁵³ and the subsequent attempts to naturalise epistemology.

⁴⁸ Quine 1969. page 82.

⁴⁹ Plantinga 1993a

⁵⁰ *ibid* page 183.

⁵¹ Pollock 1986, page 91.

⁵² Plantinga 1993a , pages V and 183.

⁵³ Gettier 1963, pages 121-3.

The first version of externalism that we want to sketch is that proposed by Robert Nozick in *Philosophical Explanations*. Nozick begins his consideration of the conditions for knowledge noting that for a subject S to know *p* something more is needed to go alongside the conditions:

- 1) *p* is true.
- 2) S believes that *p* ⁵⁴

The two further conditions he proposes are:

- 3) If *p* weren't true, S wouldn't believe *p*
- 4) If *p* were true S would believe *p*.⁵⁵

Nozick's theory is known under a variety of different names: the Tracking theory, the Subjunctive theory of knowledge, the Conditional theory of knowledge. We'll see why it's called a the tracking theory in a moment; the presence of the conditionals, and the subjunctive clauses are the obvious reasons for its other synonyms. According to Nozick the subjunctive clause of condition three rules out some Gettier type examples being treated as cases of knowledge.⁵⁶ This third condition on its own however, is not enough. According to Nozick it only tells us half the story about how the subject's belief is sensitive to the truth. Thus, he proposes his fourth condition that if *p* is true S will believe that *p*.⁵⁷ Of this account of knowledge Nozick writes:

A person knows that *p* when he not only does truly believe it, but also would truly believe it and wouldn't falsely believe it. He not only actually has a true belief, he subjunctively has one. It is true that *p* and he believes it; if it weren't true he wouldn't believe it and if it were true he would believe it. To know *p* is to be someone who would believe it if it were true and who wouldn't believe it if it were false.⁵⁸

According to this account for a subject's belief to be knowledge, it must be sensitive, (to use Jonathan Dancy's phrase,⁵⁹) to the truth of *p*. Knowledge is intimately connected to the truth of what it is that is believed, it is this connection to the truth of *p* that makes a belief knowledge. As Nozick neatly puts, knowledge tracks the truth:

Let us say of a person who believes that *p*, which is true, that when 3 and 4 [the above conditions] hold, his belief *tracks* the truth that *p*. To know is to have a belief that tracks the truth. Knowledge is a particular way of being connected to the world, having a real specific factual connection to the world: tracking it.⁶⁰ [Author's emphasis]

Here we see the externalist credentials of Nozick's theory: it is the connection to the world,

⁵⁴ Nozick 1981, page 170.

⁵⁵ *ibid* pages 172 and 176.

⁵⁶ *ibid* page 173 Colin McGinn has provided some gettier type examples to which Nozick's theory seems susceptible. Cf: Colin McGinn 1984, section 2. pages 531ff.

⁵⁷ *ibid* page 176.

⁵⁸ *ibid* page 178.

⁵⁹ Dancy 1985, page 38.

⁶⁰ Nozick 1981, page 178.

the tracking of truth and not some internal state which constitutes knowledge. This connecting link between the subject and the fact, Nozick writes, is external to us: this “linkage is out of our (let us say) ken; even if we have a belief about this linkage which tracks it, *that* tracking linkage is out of our ken.” [His emphasis]⁶¹ Further evidence of this theory’s externalist credentials is the role of evolution in shaping our capacity to track facts⁶² and empirical science’s task of investigating the methods by which we track.⁶³

Needless to say that the concept of Tracking has come in for some criticism, such as that proposed by Colin McGinn.⁶⁴ Such criticisms are outwith the scope of this paper, as are other aspects of Nozick’s description of knowledge, for example, its nonclosure under logical entailment, or what he means by ‘truth’.⁶⁵ Nozick’s tracking theory was not the first externalist account of knowledge to be given. It was preceded by both causal and reliabilist theories. In *Philosophical Explanations* Nozick contrasts reliabilism and the tracking theory. The contrast gives a flavour of reliabilism:

Reliability is a connection between belief (by the method) and truth, in the direction from belief to truth: if belief (by the method) then probably true. This direction is opposite to the direction of tracking, of subjunctive conditions 3 and 4 which have truths in the antecedents and belief or the lack of it (by the method) in the consequents. When tracking holds, if it is true (false) you would (not) believe it--- when reliability holds, if it is believed (by the method) then it (probably) would be true.⁶⁶

Causal theories don’t focus on the reliability of the method or process used, but instead develop the traditional tripartite definition of knowledge; some, for example, by adding a fourth condition that the fact that *p* causes *S* to believe *p*. A moment’s reflection reveals more than a passing similarity to Nozick’s account, indeed his account is a special type of causal theory. As at least one of the interpretations of Aquinas, which we’ll shortly look at, labels Aquinas a reliabilist we’ll devote more attention to that than causal theories. The reliabilism we will sketch is that proposed by Alvin Goldman.

Goldman’s reliabilism is squarely within the boundaries of naturalised epistemology. Nevertheless, unlike Quine’s naturalism, Goldman’s is not merely descriptive, it is also evaluative and normative.⁶⁷ The central concept of his theory, is as its name suggests, reliability:

The justificational status of a belief is a function of the reliability of the process or processes that cause it, where.... reliability consists in the tendency of a process to

⁶¹ *ibid* page 281.

⁶² *ibid* page 285.

⁶³ *ibid* page 287.

⁶⁴ McGinn 1984, section 2. pages 531ff.

⁶⁵ Nozick 1981, page 204ff.

⁶⁶ *ibid* page 266.

⁶⁷ Goldman 1986, page 2.

produce beliefs that are true rather than false.⁶⁸

The above quote gives a rough outline of what he means by reliability, but what exactly is reliability?

An object (a process, method, system or what have you) is reliable if and only if (1) it is the sort of thing that tends to produce beliefs, and (2) the proportion of true beliefs among the beliefs it produces meets some threshold, or criterion, value.⁶⁹

The crucial word in the preceding extract is “process”. According to Goldman “both knowledge and justified belief depend critically on the use of sufficiently reliable cognitive processes.”⁷⁰ In *Epistemology and Cognition* Goldman outlines various types of reliable processes, for example a causal process:

Whether a true belief is knowledge depends on why the belief is held, on the psychological processes that cause the belief or sustain it in the mind.⁷¹

He goes on to discuss other reliable process theories and the concept of epistemic justification, but space militates against discussing them or the various criticisms of.

Goldman’s reliabilism such as what proportion of beliefs must meet the criterion? What we can note is that, as would be expected from a naturalistic account, it is the role of science to determine the basic belief forming processes:⁷²

The reliable-process theory of knowing entails the *logical* possibility of knowledge, but it does not entail that knowledge is humanly possible. It is humanly possible only if humans have suitable cognitive equipment. And this is something of which we can best be apprised only with the help of psychology.⁷³ [Author’s emphasis]

The main point of Goldman’s theory is that the epistemic justification of beliefs depends on whether they are formed by reliable belief-forming processes. The cognizer need not be aware of the processes which grant justification to his beliefs; it is a thoroughly externalist account:

I leave it an open question whether, when a belief is justified, the believer *knows* it is justified. I also leave it an open question whether, when a belief is justified, the believer can *state* or *give* a justification for it. I do not assume that when a belief is justified there is something ‘possessed’ by the believer which can be called a ‘justification’. I do assume that a justified belief gets its status of being justified from some process or properties that make it justified.⁷⁴ [Author’s emphasis]

The final version of externalism which we wish to sketch is most novel: novel because it endorses foundationalism, is naturalistic and yet depends on, as the author puts it,

⁶⁸ Goldman 1985, page 100.

⁶⁹ Goldman 1986 page 26.

⁷⁰ *ibid* page 39.

⁷¹ *ibid* page 42.

⁷² *ibid* page 182.

⁷³ *ibid* page 57.

⁷⁴ Goldman 1985, page 92.

supernatural theism. It is the account proposed by Alvin Plantinga in his two volumes *Warrant: the Current Debate* and *Warrant and Proper Function*.

As the titles of both works suggest Plantinga is interested in “warrant”. According to him warrant is “that which together with truth makes the difference between knowledge and mere true belief.”⁷⁵ In the first volume Plantinga surveys the contemporary epistemological scene, critically appraising all of the accounts we have sketched here and some more besides. He finds all of the accounts: internalist and externalist, foundationalist and reliabilist, wanting. In the second volume he develops his own theory, his theory of warrant. A belief *B* has warrant for a subject *S* if and only if:

(1) the cognitive faculties involved in the production of *B* are functioning properly...(2) your cognitive environment is sufficiently similar to the one for which your cognitive faculties are designed; (3) the triple of the design plan governing the production of the belief in question involves, as purpose or function, the production of true beliefs...and; (4) the design plan is a good one: that is, there is a high statistical or objective probability that a belief produced in accordance with the relevant segment of the design plan in that sort of environment is true.⁷⁶

The externalism of the account is readily apparent: warrant is bestowed when the underlying design plan is a good one, that is, produces a high proportion of true beliefs, and the cognitive faculties function properly in the right sort of environment. Nevertheless, much of his account demands further explanation. We will do that by systematically looking at the various terms in the above definition and then considering some of the other aspects of his account.

The concept of proper function is central to his account, it is a necessary condition for warrant.⁷⁷ This is a straightforward criterion which merely stipulates that our cognitive faculties ought to be working properly, this avoids what he considers to be a flaw in many of the other epistemologies he has considered, a malfunction of cognitive faculties undermining any claim for warrant. Plantinga discusses the notion of proper function at length, for our purposes, an example from biology will give us a flavour of what he means by proper function; the human heart is functioning properly when it circulates blood around the body, this is what it was designed, or has evolved, to do. Similarly, our cognitive faculties function properly when they do what they are supposed to do.

Another criterion is also very important: the environment. Plantinga says that the environment in which you use your faculties must^{be} the type of environment that God and/or

⁷⁵ Plantinga 1993a, page 3.

⁷⁶ Plantinga 1993b, page 194 By “triple of the design plan” Plantinga means the first three conditions necessary for warrant: the beliefs are being formed by properly functioning organs, in the appropriate environment, employing a cognitive mechanism which aims at truth. Cf. *op. cit.* page 17.

⁷⁷ *ibid* page 4.

evolution designed your faculties to be used in.⁷⁸ However, neither of these two criteria are sufficient for warrant,⁷⁹ because our faculties must not be functioning in any old way, they must be functioning according to the design plan governing the production of true beliefs.⁸⁰ When he introduces this notion of a design plan Plantinga is quick to point out that it need not entail a divine designer, that, in fact, evolution may be able to account for the design plan. As we shall ^{see} however, his naturalism is built on supernatural foundations. Regarding the design plan, he writes:

...we seem to have been constructed in accordance with a specific set of specifications, in the way in which there are specifications for, for example, the 1992 Buick. According to these specifications (I'm just guessing), after a cold start the engine runs at 1500RPM until the engine temperature reaches 190F; it then throttles back to 750 RPM.....⁸¹

And:

The purpose of the heart is to pump blood; that of our cognitive faculties (overall) is to supply us with reliable information.... But not just any old way of accomplishing this purpose in the case of a specific cognitive process is in accordance with our design plan.⁸²

The design plan, in particular that facet of it whose goal is to produce true beliefs, allows Plantinga to rule out those situations where we may have warrant accidentally:

What confers warrant is one's cognitive faculties working properly, or working according to the design plan *insofar as that segment of the design plan is aimed at producing true beliefs*. But someone whose holding a certain belief is the result of an aspect of our cognitive design that is not aimed at truth but at something else won't be such that the belief has warrant for him; he won't be properly said to know the proposition in question, even if it turns out to be true.⁸³ [Author's emphasis]

To these three criteria Plantinga adds a fourth: the design plan must be a good one.⁸⁴ This brings an element of reliability into his account: the beliefs produced must have a high probability of being true; functioning properly according to the design plan in the right environment must be a reliable method, seen in it producing a high number of true beliefs.

So far we have unpacked the terms that Plantinga used in the definition of warrant, there is however, one other aspect to the amount of warrant which a belief has, that is the level of conviction with which the believer accepts the belief affects the degree of warrant which the belief has:

⁷⁸ *ibid* page 7.

⁷⁹ *ibid* page 7.

⁸⁰ *ibid* page 13ff.

⁸¹ *ibid* page 14.

⁸² *ibid* page 14.

⁸³ *ibid* page 16.

⁸⁴ *ibid* page 17.

..the more firmly *S* believes *B* the more warrant *B* has for *S*.⁸⁵

It could have been thought that the amount of warrant a belief had would determine the firmness with which we believed it. Does the above remark make his account circular? No, warrant is what turns mere true belief into knowledge. It is because a belief has a certain amount of warrant that it can be described as knowledge; what determines that level of warrant are the four conditions listed above and the extent to which the subject believes the belief. This issue takes us to an interesting aspect of Plantinga's theory which parallel's what Aquinas has to say about knowledge.

Firstly, as Plantinga admits in the preface to *Warrant and Proper Function* he cannot give a complete analysis of warrant, it is too complex a notion.⁸⁶ He thus intends to outline paradigmatic examples of warrant while acknowledging that outside this core "warrant" can be used in a number of analogical ways: there are different degrees of warrant depending on the firmness with which the subject holds the belief in question. Knowledge, he suggests is also like this: core examples can be cited, but around this core there are other examples, standing in varying degrees of closeness to the paradigm. As we saw in the last chapter Aquinas use of "knowledge" is analogical. Within his account of human knowledge Aquinas also cites various different types. Secondly, as we also saw, Aquinas also speaks of degrees of acceptance of beliefs, which depend on the extent to which the believer assents to what it is he believes.⁸⁷

Plantinga applies this account of warrant to various areas of epistemological concern, among which is perception. The account he gives of warrant and perceptual beliefs highlights another interesting aspect of his theory. According to Plantinga we form the perceptual beliefs that we do and these have the warrant which they have because that kind of belief formation is dictated by our design plan and the particular circumstances in which we find ourselves.⁸⁸ In our sketch Pollock we saw that according to him a foundationalist must form a belief about the propositional content of a perceptual state in order for such a state to serve as an epistemic foundation. We saw that this was not the case with Chisholm's foundationalism. Plantinga's account also disagrees with Pollock:

My perceptual beliefs are not ordinarily formed on the basis of *propositions about* my experience; nonetheless they are formed on the basis of my experience.⁸⁹

[Author's emphasis]

What makes Plantinga's account particularly interesting is that despite proposing a naturalised and externalist account of warrant, it is foundationalist in structure. The foundationalism which he espouses finds its origins in the philosophy of Thomas Reid. The warranted perceptual beliefs which he described above can serve as epistemic foundations,

⁸⁵ *ibid* page 19.

⁸⁶ *ibid* page IX.

⁸⁷ *ST* 2a2ae q2 a1c What he actually says will be outlined in our discussion of Ross which follows.

⁸⁸ Plantinga 1993b, page 99.

⁸⁹ *ibid* page98.

where warrant is transferred from one belief to another.⁹⁰

On the Reidian view, when I am appropriately appeared to and the other conditions for warrant..... are satisfied, then my belief that I see a tiger lily has warrant for me. But it isn't necessary that I *believe* that I am appeared to in this way.... What counts for warrant of the belief in question is not my *believing* that I am appeared to in such and such a way, but simply *being* appeared to in that way.....What confers warrant upon that proposition is not.... that it is certain or probable with respect to the experiential proposition; rather it has warrant simply in virtue of being formed in those circumstances.....We may therefore say that proper basicity... is a source of warrant... In the typical case of perception or memory or *a priori* knowledge, the proposition in question will receive warrant just by virtue of being accepted in the presence of certain conditions- conditions that do not themselves directly involve other beliefs at all.⁹¹ [Author's emphasis]

We can see how his externalism shapes his foundationalism when he talks of the belief being "formed in those circumstances", and "being accepted in certain conditions": We outlined earlier what those conditions and circumstances are. We will shortly outline four attempts to map the various categories and theories which we have thus far described onto Aquinas' account of human knowledge. Without wishing to preempt this discussion of Aquinas' theory, the categories that Plantinga uses to describe how a perceptual belief can be knowledge and serve as an epistemic foundation may well be the categories that a contemporary interpretation of Aquinas' epistemology would use. One further parallel between Plantinga and Aquinas reinforces this: theism.

Central to Aquinas' epistemology is his theism and metaphysical realism. In the following chapter, I will argue that Aquinas' account of perceptual knowledge describes the normative in terms of the descriptive, that is, to borrow Hilary Kornblith's phrase, the way we arrive at our beliefs is important for how we ought to arrive at them. Aquinas' account is fundamentally descriptive, yet the normative is implicit in the descriptive. Plantinga says that his account of warrant does likewise.⁹² He eschews the radical naturalism of Quine, preferring, as he calls it the more moderate naturalism of Kornblith, and an even milder naturalism which denies that warrant is a deontological notion. The natural sciences play a normative role in his account of warrant.⁹³ This naturalism, however, "flourishes best in the context of a theistic view of human beings: naturalism in epistemology requires supernaturalism in anthropology."⁹⁴ I'm sure that this is news to Quine. Briefly, Plantinga offers three arguments for this conclusion. The first argument attempts to show the falsehood of naturalism by showing its inability to account for proper function; that is: can

⁹⁰ *ibid* page 183.

⁹¹ *ibid* page 184ff.

⁹² *ibid* page 45.

⁹³ *ibid* page 194.

⁹⁴ *ibid* page 46.

the naturalist speak of proper functioning without speaking of a designer?⁹⁵ Plantinga's other two arguments focus on the probability of the reliability of belief formation in the light of evolutionary theory.⁹⁶ Following Patricia Churchland he says that naturalistic evolution raises two problems for epistemology: it gives us grounds to doubt that the purpose of our cognitive systems is to furnish us with true beliefs, and that they do furnish us with mostly true beliefs.⁹⁷ Given that the process of evolution is about survival rather than true belief formation⁹⁸ Plantinga goes on to set out his two arguments based on the reliability of our belief forming mechanisms, one which he alleges shows the falsehood of metaphysical naturalism and the other its irrationality.⁹⁹ It is enough for us merely to note this interesting conclusion and sketch his arguments. It is the naturalist's task to respond to them.¹⁰⁰ Of greater importance is his theory's parallel to Aquinas'.

Having defined what we mean by internalism and externalism, and sketched examples of foundationalism and externalism we now turn to the application of these labels to Aquinas' epistemology.

⁹⁵ *ibid* page 198.

⁹⁶ He systematically expresses this probability as: P(R/ N&C&E)). He outlines, not very perspicaciously what this means. R is the claim that our cognitive faculties are reliable. N is metaphysical naturalism, E is the proposition that our cognitive faculties arose by evolution and C is a complex proposition representing the many cognitive faculties we have. Cf page 220

⁹⁷ *ibid* page 218.

⁹⁸ He cites Darwin and Churchland as agreeing with this assessment that evolution is solely concerned with survival and, therefore, it is unlikely that our cognitive faculties have the formation of true beliefs as their function. Cf. *ibid* page 219

⁹⁹ In the first argument he says that given what have seen about evolutionary theory, it is probable that our belief forming mechanisms are not reliable. Therefore he writes: "...suppose you also think, as most of us do, that in fact our cognitive faculties *are* reliable.....Then you have a straightforward probabilistic argument against naturalism- and for traditional theism, if you think these two the significant alternatives." [*Op. cit.* page 228] The second argument is more complicated. He sketches it as follows: "Once I come to doubt the reliability of my cognitive faculties, I can't properly try to allay that doubt by producing an *argument*; for in so doing I rely on the very faculties I am doubting. The conjunction of evolution with naturalism gives its adherents a reason for doubting that our beliefs are mostly true; perhaps they are mostly wildly mistaken. But then it won't help to argue that they can't be wildly mistaken; for the very reason for mistrusting our cognitive faculties generally will be a reason for mistrusting the faculties generating the beliefs involved in the argument." [*ibid* page 234] He concludes: "The conclusion to be drawn, therefore, is that the conjunction of naturalism with evolutionary theory is self-defeating: it provides for itself an undefeated defeater.... Naturalism, therefore, is unacceptable." [*ibid* page 235]

¹⁰⁰ Nozick discusses the relationship between true beliefs and evolutionary process in Nozick 1981, page 284ff. It seems that he would disagree with Plantinga's pessimism regarding evolution's ability to furnish us with cognitive systems whose aim is to furnish us with true beliefs. Nozick muses: "It would be interesting to investigate the question of what type of variation of belief with the truth, what type of sensitivity of belief to fact, would be predicted solely on the basis of evolutionary theory; rather, what (according to evolutionary theory) would be the optimum type of variation or sensitivity? There is some reason to think such an investigation within evolutionary theory would end reasonably close to our account of knowledge." page 286.

b. Mappings and interpretations

We will begin by looking at the internalist characterisations of Aquinas. Scott MacDonald is quite robust in his description of Aquinas as an internalist:

Aquinas consistently and repeatedly makes it a requirement of justification that the person possess or have access to the grounds constitutive of his justification..... Aquinas holds that the cognitive power distinguishing them from animals, namely, intellect, makes them genuine knowers precisely because it is a self-reflexive power that allows them to have not only cognitions, but cognition of the truth of their cognitions..... Aquinas' main epistemological positions are virtually unstatable without appeal to his own metaphor of intellectual vision, a paradigmatically internalist metaphor.¹⁰¹

MacDonald's internalist reading of Aquinas centres on Aquinas' discussion of one aspect the second act of the intellect: the intellect's ability to judge the correspondence of the proposition it has formed to external reality.¹⁰² MacDonald writes:

Reflective consideration of whether or not a proposition conforms to reality is essential to evaluating and governing our own judgments and thought processes. We might say that, on Aquinas' view, the self-reflexive capacity of intellect makes human beings the sort of creature for whom epistemic justification can be an issue.¹⁰³

This is indeed an internalist description of justification: it refers solely to internal states. However, the type of internalism that MacDonald sketches here is different from that which we discussed earlier. MacDonald stresses that justification stems from the intellect's self-reflexive capacity to judge its own activity. Such overt self-reflexivity was missing in the contemporary accounts, such as Pollock's internalism. In the next chapter we will see that there is much in Aquinas' epistemology that will undermine the central role MacDonald gives to the intellect's self-reflexivity. In the meantime we move on to consider how MacDonald elaborates this internalist description by attempting to identify a foundationalist structure in Aquinas' epistemology.

The core of MacDonald's thesis focuses on Aquinas' account of *scientia*. We have already given a description of *scientia* in the preceding chapter. Briefly, in order to grasp what MacDonald attempts to do, we should recall that *scientia* is similar to, but not the same as our concept of science. *Scientia* is just one type of human knowledge;¹⁰⁴ it is the certain knowledge which is the result of a demonstrative syllogism, only what is universal and

¹⁰¹ MacDonald 1993, page 186.

¹⁰² *ST* 1a q16 a2c; q17 a3c.

¹⁰³ MacDonald 1993, page 163.

¹⁰⁴ In the last chapter we outlined the various kinds of human knowledge which Aquinas discusses. In *ST* 1a q14 a1 ad2, for example, as well as *scientia* which is the knowledge of conclusions, he lists, understanding which is the knowledge of principles; wisdom which is the knowledge of the highest causes and prudence which is knowing human actions. We noted that perceptual knowledge is always absent from these kinds of lists.

necessary can be the object of *scientia*. *Scientia*, like the other types of human knowledge, is an example of cognition. Cognition also includes what we would term perceptual knowledge.

While he acknowledges that cognition is Aquinas' basic epistemic category, MacDonald argues that cognition, as Aquinas describes it, is not the same as what contemporary epistemology calls knowledge, moreover according to Aquinas we can have mistaken cognition.¹⁰⁵ According to MacDonald, *scientia* is Aquinas' paradigm of knowledge,¹⁰⁶ it is the cornerstone of his whole theory of knowledge.¹⁰⁷ It is when he looks at Aquinas' treatment of *scientia* and, as he sees its paradigmatic role, that MacDonald proposes his foundationalist interpretation of Aquinas' alleged internalism.

Aquinas' principle discussion of *scientia* takes place in his *Commentary on the Posterior Analytics*. The conclusions of the demonstrative syllogism, which constitute *scientia* are, as we noted, known with certainty. This privileged epistemic status is derived from the propositions which constitute the premises of the syllogism. This is because, as we noted in the previous chapter, the premises of the demonstrative syllogism are indemonstrable, that is they are known in virtue of themselves, they are immediately known once we know the terms which constitute them.¹⁰⁸ Aquinas' reasons for this position are not particularly important at the moment,¹⁰⁹ it is enough to note that in contemporary epistemological parlance such principles are self-justifying. It is these self-justifying, immediate propositions that provide the epistemic foundations of *scientia*:

Propositions that are known by virtue of themselves (*per se nota*) are Aquinas' epistemic first principles, the foundations of *scientia*.¹¹⁰

There is undoubtedly an element of foundationalism in Aquinas' description of *scientia*. The problem with MacDonald's interpretation is that he takes what Aquinas says about *scientia* to be paradigmatic and thus applies its foundationalist structure to Aquinas' account of our knowledge of the material world.

MacDonald attempts to show that *scientia* with its foundational structure is not merely applicable to axiomatic systems, such as geometry.¹¹¹ According to MacDonald as *scientia* is the paradigm of knowledge, its foundationalist structure is applicable to perceptual knowledge. While the strict conditions of *scientia* will only be met in the paradigm case involving disciplines such as geometry, nevertheless our everyday knowledge approaches

¹⁰⁵ MacDonald 1993 page 162. Cf. *ST* 1a q85 a6c.

¹⁰¹ *ibid* page 163.

¹⁰⁷ *ibid* page 177.

¹⁰⁸ *In P.A.* I 5; 6.

¹⁰⁹ Scott MacDonald gives a full description of the nature of these indemonstrable premises. MacDonald 1993, page 168ff. We will discuss what he says in a later chapter.

¹¹⁰ *ibid* page 165.

¹¹¹ *ibid* page 174.

the paradigm without attaining it:¹¹²

Propositions about particular sensible objects, then, are sometimes better known to us even though by nature or considered in themselves they are not better known. As such, they can constitute immediate propositions *for us* and function as epistemic first principles grounding what is *for us* (though not unqualifiedly) *scientia*. Of course the fact that these sorts of propositions fall short of the sort of metaphysical priority, universality, and necessity characteristic of paradigmatic first principles leaves open the possibility of our being mistaken about them. But this is just to say that the sort of *scientia* they ground is not paradigmatically complete and certain cognition but only approximates it to some degree.¹¹³ [Author's emphasis]

Perceptual knowledge is then a weaker type of *scientia*, whereas *scientia* proper deals with what is certain, universal and necessary, this weaker version of *scientia* which is concerned with knowledge arising from perception, focuses on what is particular and contingent. This weaker, non-paradigmatic version of *scientia* MacDonald christens Secondary *Scientia*.¹¹⁴

He proposes two arguments in its favour. We have just seen one of them. It focuses on Aquinas' admission that our knowledge of the singular comes before our knowledge of the universal.¹¹⁵ MacDonald argues that propositions about the singular can constitute the immediate propositions which ground secondary *scientia*, in the way that immediate propositions can ground *scientia* proper. On the basis of these propositions about the singular we can be said to have a type of *scientia* of contingent things. His second argument is that we can have secondary *scientia* of contingent things to the extent that we can render them universal.

In later discussion we will show that this account of *scientia* of contingent things is wrong on three counts: Firstly, we can have *scientia* of the natural kinds which make up the world, i.e. *scientia* of what it is to be a horse, just as we can have *scientia* of the truths of mathematics. Secondly, Aquinas' account of perceptual knowledge is not foundationalist. Thirdly, *scientia* is neither the paradigm nor cornerstone of Aquinas' epistemology.

Scientia also plays a role in James F. Ross' internalist reading of Aquinas. Ross in 'Aquinas on Belief and Knowledge'¹¹⁶ attempts to apply Aquinas' account of the will's role in urging assent to the truths of faith, to the soul's knowledge of material reality. According to Ross "non-scientific empirical knowledge is disciplined wishful thinking that is true."¹¹⁷ This may seem a rather strange account of empirical knowledge but according to him since such knowledge of material reality lacks the certainty and vision of truth of *scientia* and hence

¹¹² *ibid* page 174ff.

¹¹³ *ibid* page 175.

¹¹⁴ *ibid* page 174.

¹¹⁵ *ST* 1a q85 a3c.

¹¹⁶ Ross 1984, page 248ff.

¹¹⁷ *ibid* page 268.

lacks the capacity to compel the intellect to immediately assent to its veracity, the activity of the will is required in order to assent to the truth of such experiential knowledge.

Ross rightly points out that a crucial feature of knowledge is that it involves assent: whatever is taken to be knowledge must be assented to.¹¹⁸ St. Thomas discusses the notion of assent when he discusses the question of faith.¹¹⁹ His discussion is relatively straightforward. According to him there are three senses of the verb *cogitare*. The sense which is important for faith and other intellectual acts is what he calls the proper sense of *cogitatio*, this describes the activity of the mind deliberating [*deliberans*] prior to attaining its goal in the grasp of truth. This type of process, he says, can regard universal considerations, the function of the intellect or particular considerations, the function of the senses. When we looked at the issue of assent towards the end of the last chapter we saw that some acts of the intellect, such as understanding and *scientia*, cause us to assent firmly to the truth of their propositions. Other acts only incur inconclusive assent, that is, what they state may or may not be the case; Aquinas calls these various acts, *opinio*, *dubitatio* or *suspicio* depending on how tentative the assent is.¹²⁰ Faith is also another intellectual act, according to Aquinas, the act of believing, *credere*. Of this Aquinas says:

The act of believing, however, is firmly attached to one alternative and in this respect the believer is in the same state of mind as one who has science or understanding.

Yet the believer's knowledge is not completed by a clear vision, and in this respect he is like one having a doubt, a suspicion or an opinion.¹²¹

In this act, similar to understanding and science, the will moves the intellect to assent. This movement of the will is because the act of faith does not have a clear vision of truth, that is, we cannot know fully the things which we have faith in. Ross sketches the situation:

The knowledge of quidditative apprehension involves no judgment at all and cannot fall prey to error. Understanding first principles and scientific knowledge are both said to involve "*manifestam visionem veritatis*" "a manifest sight of the truth,"... and by implication are said to compel, as well as cause, the assent... Belief, as he uses "*credere*" is not *possible* where the "*manifestam visionem veritatis*" is already present. In the absence of such insight, credence, belief, results from something which is "enough to move the will but not enough to move the understanding" [Author's emphasis]¹²²

Thanks to this lack of a manifest sight of the truth, faith is on the side of those intellectual acts that incur uncertainty such as opinion, yet the movement of the will in encouraging assent puts the act of believing on the side of understanding and *scientia*.

¹¹⁸ *ibid* pages 245ff.

¹¹⁹ *ST* 2a2ae q2 a1.

¹²⁰ See the previous chapter for a fuller description.

¹²¹ *ST* 2a2ae q2 a1c. Sed actus iste qui est credere habet firmam adhaesionem ad unam partem, in quo convenit credens cum sciente et intelligente; et tamen ejus cognitio non est perfecta per manifestam visionem, in quo convenit cum dubitante, suspicante et opinante.

¹²² Ross 1984, page 258. This quotation concludes with a quote from *De Veritate* q14 a1.

Ross tries to appropriate this schema to account for what he calls empirical knowledge, but which is substantially the same as what we call perceptual knowledge. He says:

Empirical knowledge has the element of discursive thought to be found in scientific knowledge, but does not have the ‘manifest insight’ found in quidditative apprehension, the grasp of first principles [understanding] and of scientific conclusions.....¹²³

As we have seen such empirical knowledge, as Ross describes it, has a great deal in common with understanding and *scientia*, but it lacks the vision of truth which both of these varieties of knowledge have and which lead us to immediately assent to them.

Where does our knowledge of actual contingent states of affairs stand.. our non-scientific everyday empirical knowledge? Is all such knowledge the result of natural faith and thereby credence, somehow arising *ex auditu* ? There is a gap: namely there is no contrast of belief(credence) with ordinary empirical knowledge.

That is because everyday knowledge is mostly from credence. As “ordinary” knowledge, the evidence is not sufficient to cause “*manifestam visionem veritatis.*” Yet, in coherence with things already assented to and their consistency and simplicity, the person may have no option, short of revising whole classes of beliefs, except to assent to the true proposition empirically supported; he has motives for assent.¹²⁴

As the evidence of perceptual knowledge is not sufficient to cause a vision of truth,¹²⁵ Ross proposes that we will our assent to such knowledge because it coheres with our other beliefs: ¹²⁶ Herein lies the novelty and central thesis of Ross’ interpretation. According to him perceptual knowledge is a type of credence, that is, it is of the same structure as the act of faith; moreover, coherence among beliefs plays a crucial role in this act of assent and thus in determining what we can claim to know. Of perceptual knowledge he writes:

The “plain Joe” neither scientist, philosopher, devil nor reacting to what is self-evident to him acquires his cognition of the world through habitual faith (a habitual commanding of assent by the will), in the absence of compelling evidence of the demonic combination of evidently authenticating utterance and bias towards the truth. His will is motivated to command assent because of the value, fittingness...utility of assenting... In sum, he is motivated by what he thinks he can get out of it..... Because there is a “*fit*” among truth, utility in believing, and strength of the command to assent that creates certitude and suppresses all fear of error, the outcome is cognition, *knowledge*. Thus, faith is the dominant process in empirical knowledge, whose chief engine is the will.¹²⁷[Author’s emphasis]

Ross’ account deserves three remarks. Firstly, while Aquinas does involve the activity of the will in the believing truths of faith, no where else does Aquinas involve the will in an

¹²³ *ibid* page 258.

¹²⁴ *ibid* page 258.

¹²⁵ *ibid* page 258.

¹²⁶ *ibid*.page259.

¹²⁷ *ibid* page 265.

intellectual activity. Ross makes the suggestion that when Aquinas speaks of *credere*, he uses religious faith as merely an example, not as what this act of believe actually is. This is fanciful. If Aquinas did think that *credere* were indicative of our perceptual knowledge he undoubtedly would have said so when he discussed our knowledge of singulars and contingent things. In fact, as we'll see, he didn't. Secondly, nowhere does Aquinas talk about coherence between beliefs having a role in determining what we can claim to know, such talk is alien to Aquinas' account of our knowledge of the material world. Thirdly, how can I will myself to believe something? The earliest critics of Descartes were quick to point out the folly of this latter position.

We have looked at two internalist interpretations of Aquinas' epistemology. MacDonald described St. Thomas' epistemology as internalist because of the intellect's ability to judge the truth of its own cognitions. Furthermore, he took *scientia* to be Aquinas' paradigmatic account of knowledge; in light of this paradigmatic reading, he attempted to give a foundationalist reading of Aquinas' account of knowledge of the material world. Ross, on the other hand, saw perceptual knowledge following the same structure as believing a truth of faith, opting at the same time for a coherentist position. In the previous chapter we emphasised an aspect of Aquinas' account of human knowledge, which although both MacDonald and Ross tacitly acknowledge, neither seem to grasp its significance: human knowledge exists in a divided and fragmented fashion, there are various species of the human knowledge. Had they really taken this in board one wonders if they would have tried to do what they did in using a specific kind of knowledge such as *scientia*, to explain our knowledge that Socrates is sitting? One contemporary author who does explicitly acknowledge that human knowledge exists in a fragmented state, as we saw earlier, is Eleonore Stump. We now turn to her account.

Eleonore Stump provides a short externalistic interpretation of Aquinas' epistemology in her article "Aquinas on the Foundations of Knowledge".¹²⁸ As the name of the article suggests she is interested in Aquinas and the foundations of knowledge. A good deal of the article is devoted to refuting a foundationalist interpretation of Aquinas.¹²⁹ She begins by noting the reason for such an interpretation. Briefly, she sees it as the result of a mistaken understanding of *scientia* which sees it translated as knowledge. In particular, according to Stump *scientiae* dependence on indemonstrable principles can give an impression of foundationalism.¹³⁰ Given these errors, she says it is no surprise that *The Commentary on the Posterior Analytics* can be seen as a statement of Aquinas' epistemology.¹³¹ This

¹²⁸ Stump 1992, page 125ff.

¹²⁹ She singles out Alvin Plantinga and Nicholas Wolterstoff as two philosophers who given such a foundationalist interpretation. Interestingly we have noted that Plantinga describes Aquinas as an externalist; in sketching Plantinga's own theory we have seen that he embraces both externalism and foundationalism.

¹³⁰ *ibid* page 133.

¹³¹ *ibid* page 132.

interpretation is, however, “irremediably inaccurate”.¹³²

Stump then goes on to outline what she considers to be a proper account of *scientia* and its indemonstrable principles, and, at the end of her article, a short exposition of what she considers to be the main emphasis of *In P A*. In particular, she argues that *scientia* should not be equated with what we call knowledge;¹³³ she also questions if the indemonstrable principles on which *scientia* rests are capable of serving as epistemically basic propositions.¹³⁴ The details of her argument need not detain us here, they will be of interest to us when we look at *scientia* in a later chapter. Suffice to say she considers that her account of *scientia* and related issues dispels any temptation to call Aquinas a foundationalist.

Stump’s positive thesis in this article is that Aquinas proposes a theological externalism with reliabilist overtones.¹³⁵ Aquinas’ externalism rests on his metaphysical realism:

Like Aristotle, Aquinas is a metaphysical realist. That is, he assumes that there is an external world around us and that it has certain features independently of the operation of any created intellect, so that it is up to our minds to discover truths about the world.¹³⁶

Furthermore:

God has made human beings in his own image, and they are made in his image in virtue of the fact that, like him, they are cognizers; they can understand and know themselves, the world, and the world’s creator.¹³⁷

On Aquinas’ view, our cognitive capacities are designed by God for the express purpose of enabling us to be cognizers of the truth, as God himself is. In particular, when we use sense and intellect as God designed them to be used in the environment suited to them, that is, in the world for which God designed human beings, then those faculties are absolutely reliable.¹³⁸

In this description of Aquinas’ reliabilism by Stump there is more than a passing resemblance to Plantinga’s description of warrant. She notices a parallel between Plantinga and Aquinas herself.¹³⁹ At the moment we are not interested in any such parallels. For the moment it is enough to note that the metaphysical realism which Aquinas inherited from Aristotle is a significant factor in his epistemology, but of far greater importance shaping his externalism and reliabilism, indeed also underpinning that metaphysical realism, is his Christian faith and its doctrine of creation. Stump notes that it is because of his Christian

¹³² *ibid* page 133.

¹³³ *ibid* page 143.

¹³⁴ *ibid* page 141.

¹³⁵ *ibid* page 158.

¹³⁶ *ibid* page 144.

¹³⁷ *ibid* page 146.

¹³⁸ *ibid* page 147.

¹³⁹ *ibid* page 149.

faith that there is no real explicit statement of externalism or reliabilism, much of what would constitute such a theory Aquinas just takes for granted:¹⁴⁰

Aquinas, like Aristotle, is clearly a realist; he thinks that there are truths about the world which the human mind must discover, rather than invent. This view flows from his theological commitments and therefore doesn't need or get a lengthy argumentation. For these reasons, it would be a mistake to look for explicit consideration of knowledge as a function of the reliable operation of human cognitive capacities.....The maker of human cognitive equipment is God, and his purpose in making that equipment is to enable human intellects to imitate him in his activity as a knower. This view, which Aquinas takes to be revealed by Scripture, is so fundamental to his beliefs that it gets little explicit attention.¹⁴¹

Our cognitive faculties are reliable because they have been created by God, moreover, as Stump notes:

not only are they [our cognitive faculties] reliable but as regards their proper objects it is even the case that neither sense nor intellect can be deceived or mistaken.¹⁴²

This startlingly optimistic statement is closely scrutinised by Norman Kretzmann in his article, "Infallibility, Error and Ignorance."¹⁴³ Kretzmann opens his article by admitting that Stump's reliabilist interpretation of Aquinas has motivated him to look, not at Aquinas' reliabilism as such, but the reliability Aquinas attributes to the operations of the senses and intellect.¹⁴⁴ According to Kretzmann there are two components of Aquinas' reliabilism: natural and supernatural, Aristotle and God.¹⁴⁵

From those central doctrines [of the Christian faith, i.e. God, the benevolent creator wishing to manifest himself] alone it seems to follow that skepticism is frivolous—that humans must have been created with reliable access to created reality and with reliable faculties for the processing of the reliably acquired data.¹⁴⁶

Aquinas' theistic reliabilism depends on Christian doctrine for its starting points and its outline. But its account of the *mechanism* of cognition and of the *details* of sensory and intellectual reliability is largely drawn from Aristotle's epistemology....¹⁴⁷ [Author's emphasis]

Kretzmann offers an assessment of each component before addressing the actual issue of the reliability of our sensory and intellectual mechanisms; this consideration is divided into three

¹⁴⁰ *ibid* page 149ff.

¹⁴¹ *ibid* page 150.

¹⁴² *ibid* page 147. Recall: the proper object of the intellect is a quiddity. That of the senses is what they are designed to sense, thus the proper object of sight is colour.

¹⁴³ Kretzmann 1992, page 159ff.

¹⁴⁴ *op. cit.* page 159.

¹⁴⁵ *ibid* page 160.

¹⁴⁶ *ibid* page 161.

¹⁴⁷ *ibid* page 168.

parts: the reliability of the mechanisms used by the external senses, the internal senses and the intellect.

Like Stump, Kretzmann finds Aquinas' claim that the senses and intellect cannot be mistaken about their proper objects astonishing. As Kretzmann notes God's goodness seems not just to guarantee the reliability of our cognitive faculties but their infallibility.¹⁴⁸ In discussing the reliability of the various mechanisms involved in perception he attempts to unpack this claim regarding infallibility. Firstly he notes that while our God-given equipment is flawless we can misuse and so make mistakes.¹⁴⁹ Secondly, with regard to the intellect he proposes an interpretation of Aquinas' theory which removes any misunderstanding regarding the intellect's infallible grasp of its proper object.

The intellect grasps its proper object, a quiddity, in its first act. Kretzmann calls this first act the "alpha cognition". Of this cognition he writes:

The infallibility claim is by no means a claim that the first operation of the intellect delivers to us something like a set of true propositions regarding the quiddity that is its object. Whatever, it [the alpha cognition] delivers infallibly leaves us in a state close to total ignorance about that quiddity.¹⁵⁰

This alpha cognition is "inchoate, unanalysed, confused, imprecise, characterised by ignorance more than by cognition."¹⁵¹ It does not even include the naming of the object of cognition; that is part of the second act, for it involves more than just having a cognition.¹⁵² The alpha cognition barely constitutes knowledge, but crucially, it marks the beginning of the quest for knowledge, a quest, which Kretzmann says, ends with the omega cognition. The omega cognition is the distant goal of *scientia*, it is the complete and certain cognition of that which constituted the alpha cognition. He describes the difference between the alpha and omega cognition, between the first act of the intellect and *scientia* as follows:

For the science of nature, no matter how highly developed, also has the quiddities of things as its objects, and Aquinas is under no illusions about the difficulty of achieving scientific knowledge. His account of intellect's first operation depends on our recognising that a child's first acquisition of the concept of a star differs only in degree from the most recondite advance in astronomy's understanding of the nature of a star. Quiddities, the proper object of the intellect's first operation *and*, in just the same respect, the objects of both inchoate and culminating (alpha and omega) intellectual cognition.¹⁵³

The complete cognition which constitutes the omega cognition is achieved by reasoning. It is during this process that error can occur, as it can in the second act of the intellect. It is

¹⁴⁸ *ibid* page 169.

¹⁴⁹ *ibid* page 178.

¹⁵⁰ *ibid* page 187.

¹⁵¹ *ibid* page 190.

¹⁵² *ibid* page 190.

¹⁵³ Kretzmann 1993, page 143 .

interesting to note that in his article when he discusses the second act of the intellect (which is an essential part of the process from alpha to omega cognition) Kretzmann like MacDonald acknowledges that there is an internalist component to Aquinas' theory of cognition.¹⁵⁴ However, for Kretzmann, it is only a component, he is quite explicit about Aquinas' externalist credentials.¹⁵⁵

Such are the various attempts to use the language of contemporary epistemology to classify Aquinas. Mindful of what they say we now embark on a scrutiny of Aquinas' account of perceptual knowledge, or as *ST* 1a q84 puts it, our knowledge of how the soul, while joined to the body, knows material things. Hopefully, this consideration will shed light on which of the above attempts are "untenable"¹⁵⁶ and "irremediably inaccurate."¹⁵⁷

¹⁵⁴ Kretzmann 1992, page 176 footnote 44.

¹⁵⁵ *ibid* pages 173/193.

¹⁵⁶ MacDonald 1993, page 186.

¹⁵⁷ Stump 1992, page 133.

3. *Perceptual Knowledge*

Besides grasping the existence of a thing, every immediate judgment reveals itself as both true and certain. As object of reflexive simple apprehension it manifests not only its own conformity with the being it apprehends in its function as cognitive act, but also its definite determination by the necessity of this being. It thereby grounds the judgment of its own truth and the judgment of absolute assent by the intellect. It leaves the knower not with provisory but with unconditional and intellectually justified certitude. Such certitude is the culmination of a man's natural desire for knowledge and truth in regard to what is immediately known.

Joseph Owens *An Elementary Christian Metaphysics*.¹

To a contemporary epistemologist the language which Owens uses may appear odd; once unpacked, the claims he makes appear outrageous. Compare Owens' bold epistemological assertions with the Alvin Goldman's tale of Henry and fake barn country.² It's a tale which illustrates how elusive everyday perceptual knowledge, or immediate knowledge to use Owens' terminology, can be. Henry is taking his son for a drive in the country. As they drive along Henry identifies various elements of countryside life such as tractors and farms. Seeing a barn, Henry points it out to his son. Henry has indeed seen a barn: there is good visibility, Henry has excellent eyesight and is driving slowly enough to have a good look. We would have little hesitation, Goldman notes, in saying that Henry knows that the object is a barn. However, unknown to Henry he has entered a district where, in order to appear affluent, the residents have erected papier-maché facsimiles of barns which, from the road, look exactly like the real thing. So real are they, that visitors often mistake them for barns. Having just entered the district Henry hasn't encountered any fake barns. Given this situation and despite the fact that he did indeed see a real barn, Goldman says:

¹ Owens 1985, page 276.

² Goldman 1976, page 772.

We would be strongly inclined to withdraw the claim that Henry *knows* the object is a barn.³ [Author's emphasis]

However, applying Goldman's scenario to Owens' description of immediate knowledge suggests a different conclusion regarding the claim that Henry knows. *Prima facie* on Father Owens' account Henry appears to be in a situation where he has immediate knowledge, a situation where he has "unconditional and intellectually justified certitude" that it is a barn which he is looking at. Henry has formed a judgment that he sees a barn, a judgment, which according to Owens, is true and certain. In fact, it seems that Owens would be committed to saying this of Henry's judgment even if Henry is looking at a fake barn. But manifestly, poor Henry can't know it's a barn and thus his judgment can't be said to be certainly true, but only accidentally true and thus clearly not certain. Despite the bold tone of his assertions Owens seems incapable of dealing with this Gettier type example. Three reactions are possible to the application of the hapless Henry example to Owens' epistemology. First, we could say that Owens is talking nonsense and his epistemology is fatuous. Second, we could say that, in Thomas Kuhn's celebrated term, the epistemology of Owens and the post Gettier epistemology which spawned the Henry example are incommensurable. Third, we could explore the epistemology of which Owens' statement is indicative.

Doubtless many epistemologists of the English speaking world would choose the first option. Unsurprisingly, it is not my option, nor is the incommensurability thesis. The epistemological claims made by Father Owens are fairly representative of an epistemology which owes its heritage to the work of St. Thomas; although we must acknowledge that Owens wasn't giving a specific treatment of that particular epistemology in the work cited. In this chapter we will analyse Aquinas' account of perceptual knowledge. Hopefully by the end of the analysis we will see the motivation for Owens' boldness and optimism in his epistemological claims.

The principle elements of Aquinas' epistemology, and in particular his account of our knowledge of material reality found in *ST* 1a q84ff, were outlined in chapter one of this work. Where necessary we will make reference to that outline. In the preceding chapter we outlined various interpretations of Aquinas' epistemology. The analysis to be developed in this chapter rests on the central thesis that there are two fundamental components to any judgment which may constitute an instance of perceptual knowledge and that it is only by considering these components that an adequate description of Aquinas' account of perceptual knowledge can be given. One component is metaphysical, the other psychological. Together, these components constitute an elaborate and complex theory in which, as we shall see, traces of the various epistemological positions, such as foundationalism and reliabilism, sketched in the previous chapter can be identified. Once we have offered our analysis, we will move on, in the next chapter, to look at the relationship between perceptual

³ *ibid* page 773.

knowledge and *scientia*.⁴

a. *The metaphysical component*

Aquinas opens *ST* 1a q84 with the question “Does the soul know material things through the intellect?”⁵ After a brief survey of the thoughts of Heraclitus and Plato on this question, Aquinas comes to the conclusion that “the soul knows material things through the intellect with a knowledge that is immaterial, universal and necessary.”⁶ This immaterial, universal and necessary knowledge of material reality, what we have called perceptual knowledge, rests on an important metaphysical foundation. From the perspective of contemporary epistemology some may balk at the proposed connection between metaphysics and epistemology. But in order to properly appreciate Aquinas’ account of perceptual knowledge we must leave aside this and other prejudices which we may bring from our post-Cartesian and post-Lockean heritage.

It hardly needs to be restated that as a Christian St. Thomas had unshakable faith that God was responsible for creation. This theological tenet finds its philosophical expression in Aquinas’ metaphysical realism which we have already alluded to in the last chapter. In *Realism and Truth* Michael Devitt gives a description of realism which, some of its contemporary nuances notwithstanding, I am sure Aquinas would be happy to subscribe to:

Realism is an overarching ontological doctrine about what there is and what it is like. It is committed to most of the physical posits of common sense and science and to the view that these entities are independent of the mental. It has an epistemic aspect: the entities do not depend for their existence or nature on our opinion; they exist objectively.⁷

The epistemic aspect of this realism, as Devitt calls it, is important because it is the underlying realist ontology, the objective existence of things in the world which, as we shall see, constitutes the metaphysical component of perceptual knowledge.

⁴ Clearly perceptual knowledge is not merely visual knowledge. We can have perceptual knowledge of sounds, smells, tastes and tactile qualities. Moreover, often perceptual knowledge results from the interplay of these different sensory powers. In this discussion, however, for simplicity’s sake when we talk of perceptual knowledge, the knowledge of which St. Thomas speaks in *ST* 1a q84, we will mean the perceptual knowledge which arises from sight. What we will say with respect to visual perceptual knowledge holds good of perceptual knowledge which arises from the other senses.

⁵ *ST* 1a q84 a1. In *Verbum* Lonergan says that this title “Quomodo anima conjuncta intelligat corporalia, quae sunt infra ipsam” refers not just to question 84, but is actually the general title used by an early editor to cover all the material in questions 84 to 86. The correct title to question 84 Lonergan suggests is “Per quid ea cognoscit,” the term which Aquinas uses to describe it in his preamble to this section of the *Summa Theologiae* the Blackfriars’ edition translates this as “By what means the soul knows corporeal things.” cf. Lonergan 1968, page 166.

⁶ *ibid.*... ergo quod anima per intellectum cognoscit corpora cognitione immateriali, universali et necessaria.

⁷ Devitt 1991, page 295.

According to Aquinas before one can know what a thing is, one must know that it is. In traditional Thomist language: '*an sit?*' [is there such a thing?] is epistemically prior to '*quid est?*' [what is it?]. In the first book of the *Commentary on the Posterior Analytics* Aquinas writes:

Before one knows whether something exists, one cannot strictly speaking know what it is: for there are no definitions of what does not exist. Hence the question, does it exist is prior to the question, what is it. But one cannot prove that something exists, unless one understands what the name signifies.⁸

Jan Aertsen in his book *Nature and Creature* discusses the connection of the two questions: ...when we inquire concerning whether a centaur is or not, then the question is simply whether it exists. The moment existence is affirmed the subsequent question becomes 'what is it?'"⁹

The relation between the two questions is sometimes such that we know that a thing is without knowing perfectly what it is, sometimes we know both at the the same time. However, a third possibility is excluded, namely that we should know 'what something is' and be ignorant of 'if it is.'¹⁰

Aertsen' last comment may seem a little odd. Clearly there are some things of which we do seem to know what it is, without knowing if it is. The centaur, for example, we know that it is a thing with a horse's body and a man's head and also know that no such beast exists. Thus, it appears that we do have an answer to the question *quid est?* without answering *an sit?* Doesn't this contradict Aertsen and, more fundamentally, Aquinas' point about the epistemic priority of *an sit?* No. At the end of the extract from the *Commentary on the Posterior Analytics* Aquinas makes an important point: we must know what a word signifies before we can prove that there is such a thing. Signification is the key issue. In the case of the centaur we know that there is no such thing, but nonetheless we know what the word 'centaur' signifies, a thing with a horse's body and a man's head. Knowledge of the signification of the word is not the same as answering the question *quid est?* The question *quid est?*, at its deepest level, is really a search for a thing's essence and you can't know a thing's essence unless you know it exists. The issue of *an sit?*, *quid est?* and signification take on enormous importance in Aquinas' account of how we can have knowledge of God.

We are not interested in the human knowledge of God, but the human knowledge of material reality. Our consideration of perceptual knowledge will show the importance of the two questions in Aquinas' scheme. As we consider the metaphysical component of that scheme we will see the epistemic priority of the question *an sit?* It is a priority which rests on a central facet of Aquinas' epistemology: the experience of external objects is the ultimate

⁸ *In P.A. I 2* Antequam sciatur de aliquo an sit, non potest sciri proprie de eo quid est: non enim non sunt definitiones. Unde quaestio, an est, praecedit quaestionem, quid est. Sed non potest ostendi de aliquo an sit nisi prius intelligatur quid significatur per nomen.

⁹ Aertsen 1985, page 13.

¹⁰ *ibid* page 24.

ground of the individual's claim to know.

Crucially, for Aquinas, it is the being of the external object and its impinging on our sensory apparatus that is the fundamental cause of our knowing. Our experience of its existence is the basic ground of our justification for our ever attempting or claiming to know. As he states:

The created mind only knows what is already there to be known, for the first thing the mind grasps of anything is that it *is* something or other.¹¹

The editor of the above translation may well highlight 'is,' but this translation is inaccurate. St. Thomas writes:

Praeterea, intellectus creatus non est cognoscitivus nisi existentium. Primum enim quod cadit in apprehensione intellectus est ens.

In this text we see that Aquinas actually talks of '*existentium*' 'existing things' and uses the word '*ens*', 'being'. A more accurate translation clarifying the thrust of Aquinas' argument is:

Moreover, the created intellect only knows existing things. For the first thing the intellect grasps in apprehension is being.

This grasp of being, as we perceive the external object, is a *sine qua non* condition for knowledge. This point is reiterated in other parts of the Thomistic corpus:

That which first appears is *the real*, and some insight into this is included in whatsoever is apprehended. This first indemonstrable principle, 'There is no affirming and denying the same simultaneously,' is based on the very nature of the real and the non-real: on this principle, as Aristotle notes, all other propositions are based. [Editor's emphasis, again presumably to emphasise the significance of *ens* in the original text]¹²

In the first operation the first thing that the intellect conceives is being, and in this operation nothing else can be conceived unless being is understood...¹³

Now, as Avicenna says, that which the intellect first conceives as, in a way, the most evident, and to which it reduces all its concepts, is being. Consequently, all the other conceptions of the intellect are had by additions to being.¹⁴

¹¹ ST 1a q12 a1.3.

¹² ST 1a2ae q94 a2c Nam illud quod primo cadit sub apprehensione est ens, cujus intellectus includitur in omnibus quaecumque quis apprehendit. Et ideo primum principium indemonstrabile est quod non est simul affirmare et negare, quod fundatur supra rationem entis et non entis; et super hoc principio omnia alia fundatur, ut dicit Philosophus in IV *Meta*.

¹³ In *Meta*. IV 6 In prima quidem operatione est aliquod primum, quod cadit in conceptione intellectus, scilicet, hoc quod dico ens, nec aliquid hac operatione potest mente concipi, nisi intelligatur ens.

¹⁴ DV q1 a1c. Illud autem quod primo intellectus concipit quasi notissimum, et in quo omnes conceptiones resolvit, est ens, ut Avicenna dicit in principio *Metaphysicae* suae. Unde oportet quod omnes aliae conceptiones intellectus accipiantur ex additione ad ens.

A small mistake in the beginning is a big one in the end, according to the philosopher in the first book of *On the Heavens and the Earth*. And as Avicenna says in the beginning of his *Metaphysics*, being and essence are what is first conceived by the intellect.¹⁵

Essence will be dealt with when we come to consider the psychological component. For the moment we devote our energies to explicating the metaphysical component by considering what it means for the intellect to grasp being.

The preeminence of the grasp of being has been emphasised by Jan Aertsen. According to him it is the “archimedean point on which all knowledge is based.”¹⁶ Elders and Regis also highlight the seminal role played by the grasp of being

Being is the first concept to enter the human intellect, all other concepts are reduced to it.¹⁷

Being is the first aspect perceived by the intellect in its relations with things and underlies the ultimate intelligibility of the real.¹⁸

Maritain and Lonergan, while not directly addressing the importance of the grasp of being nevertheless, also emphasise its importance in Aquinas’ scheme:

...it is necessary that our intuition or intellectual perception, far from confronting us with a multiplicity of unresolvable simple natures, should confront us with an object found everywhere and everywhere varying, which is being itself, and in which all our notions are resolved without prejudice to the irreducibility of essences.¹⁹

... to know means to know being...²⁰

It is the being of objects external to the intellect, their real existence in the world, and our grasp of them which initiates the process of perceptual knowledge. This is the metaphysical foundation upon which the edifice of his account of human epistemology rests. Without this grasp of being there would be no such knowledge. In the grasp of being the senses and sensory knowledge play an essential role which we will consider later. For the moment we continue our analysis of this metaphysical foundation, this grasp of being.

Regis makes some comments about this grasp of being, as he calls it first-known being, which can serve as a useful catalyst for our analysis:

First-known being is therefore the real considered as every actually existing

¹⁵ *EEE* Prooemium1. Quia parvus error in principio magnus est in fine, secundum Philosophum, I Caeli et Mundi; ens autem et essentia sunt quae primo in intellectu concipiuntur, ut dicit Avicenna in *Metaphys.*,

¹⁶ Aertsen 1985, page 192.

¹⁷ Elders 1993, page 87.

¹⁸ Regis 1959, page 284.

¹⁹ Maritain 1937, page 119.

²⁰ Lonergan 1957 page 340.

corporeal thing.....this knowledge has extraordinary potentiality since all singulars, whatever they may be are virtually contained in this first and most universal of all concepts.²¹

What makes first-known being the poorest of concepts is that it contains no distinct knowledge, not only of any singular, but also of any specific nature, nor even of the nature of being as such.²²

When we say that the intellect grasps being we are not making any claim that the intellect has acquired what we might term knowledge. As Regis says it is the poorest of concepts that contains no distinct knowledge of specific natures or being itself, but it is, nonetheless, the foundation on which the whole enterprise depends.

In the above extracts Regis also talks about 'first known being' in terms of 'the real'. This is an important point which, in a sense, has already been alluded to. When we set out the various texts from the Thomistic corpus dealing with the grasp of being we noted a reluctance on the part of some translators to translate '*ens*' as 'being', they opted for some other circumlocution such as 'the real'. Perhaps their reluctance has more to do with attempting to clarify St. Thomas than with shoddy translation. What do I mean by this? 'Being' is an extremely abstract metaphysical term. When St. Thomas says of the intellect:

Primum enim quod cadit in apprehensione intellectus est *ens*.²³

which Timothy McDermott translates as 'the first thing the mind grasps of anything is that it is something or other'; St. Thomas, does indeed mean that the first thing that intellect apprehends is being, but he is not saying that the knower has arrived at a knowledge of '*ens*' that a metaphysician would have. The metaphysician's concept is more accurately labelled '*ens commune*' 'common' being'. Elders highlights the distinction between '*ens commune*' and the sense of '*ens*' used above:

...when we speak of *ens commune*, we do not go as far as to denote a particular realisation of being or this or that being, but we consider only 'that which is', understanding thereby that we abstract from what is proper to matter. For this reason the concept *ens commune* is not the same as that first concept of being which a child acquires as soon as its intellect begins to function.²⁴

When Aquinas says that the intellect grasps being, he is referring to a particular realisation of being in a given object that exists outside the knower. The translators attempted to clarify this by using terms such as 'the real.' The intellect has indeed a grasp of 'being': the existence of an object in the world. It is this encounter between the intellect and real existence which initiates the epistemic process.

This initial apprehension of being could be described as a prescientific understanding of

²¹ Regis 1959, page 288.

²² *ibid* page 289.

²³ ST 1a q2 a1.3

²⁴ Elders 1993, page 20.

being. 'Being' as used by the metaphysician is the result of abstraction. It is something of which he has a 'scientific' understanding, in the same way as a mathematician has a scientific knowledge of geometry, whereas a young child has no such knowledge, but can still speak of squares and triangles. 'Being' as used by Aquinas in the above extracts, is technically the same notion as that used by the expert, but from the knower's perspective he understands it not as an abstract concept, but prescientifically as the real existence of the object before him. This may be the motivation behind Aquinas when he wrote in the above quote from *De Veritate* q1 a1:

Illud autem quod primo intellectus concipit quasi notissimum.....est ens.

The important phrase is '*quasi notissimum*'. This sentence was translated as:

That which the intellect first conceives as, in a way, the most evident...is being. 'Being' is 'in a way, most evident,' because clearly we don't grasp 'being' in the abstract sense, but the real existence of the object in the external world. As Etienne Gilson in *Thomistic Realism and the Critique of Knowledge* puts it:

..we do not encounter Pure Being in experience: we encounter the being of concrete substances whose sensible qualities affect our senses.²⁵

Of course, in an Aristotelian schema such as St. Thomas', many things other than substances are termed beings:

Anything which is real, from a stone to an impression, from a colour, to a certain place in the universe, is a being. Being is not one class of things: all things whatever class they belong to, are beings.²⁶

However, as Aristotle stated in the *Categories* substance has a primacy and priority which the other accidental beings don't enjoy. It is the fundamental category of being. Thus, following Aertsen and Gilson, we can say that the encounter with the being of concrete substances is the archimedean point of all knowledge. All human knowledge springs from this encounter with being external to it: the existence of individual substances, for it is the being of these individual objects that the intellect grasps.

Within the framework of an Aristotelian metaphysics, such as St. Thomas', the primacy and importance of substance is well known. Charlotte Witt, the Lockean connotations of her description of substance notwithstanding, gives a useful description:

The view that substances underlie as subjects all other categories of being and that no other beings underlie substances as subjects, suggests, by spatial imagery, a thesis of ontological foundationalism. Substances are the ontological foundations of what there is: they do not rest on further foundations.²⁷

From our consideration of the metaphysical component of perceptual knowledge we can say that substances are not only ontologically foundational, but also perform an epistemically foundational role. It is the grasp of their existence which initiates the epistemic process and without this grasp the epistemic process could not begin. There is a sense in which the

²⁵ Gilson 1986, page 205.

²⁶ Elders 1993, page 33.

²⁷ Witt 1989, page 51.

foundationalism sketched here can be described as externalist because it is this grasp of being external to the intellect that initiates the epistemic process. This foundationalism is different from that proposed by Descartes or any of the other philosophers which we discussed in the last chapter. In espousing this form of foundationalism we need make no comments about self-presenting or doxastic mental states. This is because, from the knower's point of view, the actual grasp of being is preconceptual, it is part and parcel of how the intellect, according to Aquinas, acquires knowledge. Nor, as we shall see later, does acknowledgement of this foundational element support MacDonald's foundationalist reading of Aquinas.

Lawrence Dewan writes:

I wish to focus on one part of that ontology, viz, the priority of substance over accident. It strikes me that insufficient attention has been given to this feature of St. Thomas' explanation of knowledge.²⁸

As much of human knowledge is obtained by consideration of accidents (as Aquinas himself acknowledges that accidents, although lower in being, are more knowable)²⁹ it is not surprising that insufficient attention should be given to the priority of substance and its importance in Aquinas' explanation of knowledge. Hopefully, the last few pages have gone some way to giving it some of the attention it merits.

In offering this analysis of the grasp of being, we are not suggesting that it is a distinct act of the intellect prior to its other operations. The encounter of external being is intrinsic to the first act of the intellect. As Orestes Gonzalez in an article dealing with the apprehension of being in Aquinas puts it:

..quiddity and act of being are related to one another as object to *ratio objecti* for the intellectual faculty just as colour and light are for the sensible faculty of sight.....³⁰

Gonzalez's thesis is that in the grasp of a quiddity there is an apprehension of another element, the object's participation in the act of being. Not only this, we would hold that the grasp of being is necessary for the whole epistemic process to begin, as it constitutes the answer to *an sit?*

Over the last few pages we have looked at the metaphysical component: the importance of external being. We began our consideration of the metaphysical component by noting the importance of the two questions *an sit?* and *quid est?* We noted that before one is in a position to ask *quid est?*, one must know the answer to *an sit?* In the case of perceptual knowledge the question *an sit?* is implicitly answered in the grasp of being, intrinsic to the first act of the intellect. Our description of how the metaphysical component constitutes the answer to *an sit?* is lacking in one very important respect. We have yet to outline the activity of the senses in this enterprise. This we now do before we move on to consider how the

²⁸ Dewan 1984, pages 383-394.

²⁹ *In Meta* VII. 2

³⁰ Gonzalez 1994, page 484.

intellect answers *quid est?*

In chapter one we outlined the relationship between the intellect and the senses; we noted that the last three articles of *ST* 1a q84 are devoted to the relationship of the intellect and senses. To risk stating the obvious, the senses are human attributes. Perhaps, they ought to be considered under the heading of the psychological component of our account of perceptual knowledge? However, we will discuss them here under the heading of the metaphysical component because the senses are essentially the conduit for the immaterial intellect to encounter the material world. St. Thomas captures something of this in the opening lines of his reply in *De Veritate* q1 a11:

Our knowledge, taking its start from things, proceeds in this order. First, it begins in sense; second it is completed in the intellect. As a consequence, sense is found to be in some way intermediary between the intellect and things; for with reference to things, it is, as it were, an intellect, and with reference to intellect, it is, as it were, a thing. ³¹

The above extract describes the senses' intermediary place between the intellect and the world. Here we are principally concerned with their relationship to the world. Nevertheless, we note Aquinas' description of the relationship between the senses and the intellect: the senses are like a thing from the perspective of the intellect: the senses are an object suitable for intellectual activity.³² We have already seen in our consideration of the relationship between the intellect and the senses Aquinas state that the images arising from the sense were somewhat the matter of the cause of our knowledge.³³ In short, the senses provide the stuff out of which intellectual knowledge can be attained. How it is attained is the story to be told in the next section. Here we intend to examine more closely the role of the senses as the intellect's contact with material reality, an examination which will serve as a means of forming a link with that following section.

Foundational as they are for his epistemic process, external substances, on their own, cannot provide the answer to *an sit?*, this occurs only when the properties of those substances impinge on the senses and on this basis the intellectual search for what it is can proceed. In

³¹ Dicendum, quod cognitio nostra quae a rebus initium sumit, hoc ordine progreditur, ut primo incipiat in sensu secundo perficiatur in intellectu; ut sic sensus inveniatur quodammodo medius inter intellectum et res: est enim, rebus comparatus quasi intellectus; et intellectui comparatus, quasi res quaedam.

³² This statement, in no way intends to contradict Aquinas' fundamental thesis that what we know are objects in the world and not their mental representations.

³³ See also page 38 of this work which quotes *ST* 1a q84 a6c. "Secundum hoc ergo, ex parte phantasmatum intellectuallis operatio a sensu causatur. Sed quia phantasmata non suffiunt immutare intellectum possibilem, sed oportet quod fiant intelligibilia actu per intellectum agentem; non potest dici quod sensibilis cognitio sit totalis et perfecta causa intellectualis cognitionis, sed magis *quodammodo est materia causae*." [My emphasis]

The point being made by "*quodammodo est materia causae*" in the above quote is that on their own the senses cannot cause intellectual knowledge. Intellectual knowledge is immaterial and universal, thus the activity of the agent intellect is required to abstract from the particularity and materiality of what the senses provide.

the first place things in the world impinge on our senses. St. Thomas writes:

A sense is a passive power, meant to be set in action by a sense object external to it.

This outside source of internal change is the *per se* object of sense perception.....³⁴

It is this change into act by the sensible object which, in the case of perceptual knowledge provides the evidence to the answer *an sit?*. Thus, the importance of both these factors in answering *an sit?* is apparent: if there were nothing there, there would be no change in the senses and without the senses, there would be no knowledge of what is there. The quest for knowledge finds its origin in external reality as it moves the senses from potency to act.

“In reference to the world the senses are like an intellect,” Aquinas said in *DV* q1 a11. We now turn to what the senses ‘know’ of the world. On the one hand what he says is fairly simple and straightforward. On the other, it isn’t. It is simple and straight forward because according to Aquinas the things which the senses apprehend can be classified into two categories: proper sensibles and common sensibles. A proper sensible, Aristotle tells us in the second book of his *De Anima*, is:

the proper object of each sense which does not fall within the ambit of another sense.³⁵

Thus colour is the proper sensible of sight and sound the proper sensible of hearing.

Common sensibles, in contrast,

are movement, rest, number, shape, dimension. Qualities of this kind are proper to no one sense, but common to them all.³⁶

It is not so simple and straightforward when we look at what he says about the apprehension of these common and proper sensibles by the senses, Aquinas makes an important and startling distinction. He writes:

The senses are not deceived with respect to their proper object- sight, for example, with respect to colour- except, as may happen, in an incidental way when there is an impediment in the organ (for instance when, in a feverish person, the sense of taste experiences sweet things as bitter because the tongue is coated unhealthily). On the other hand, the senses can be deceived with respect to common sensibles- for example in discerning sizes and shapes.³⁷

It does seem an outrageous claim to make, that the senses, if they are functioning properly, are never mistaken with regard to their proper objects. In short, they seem infallible!

Experience suggests otherwise. For example, light affects colour, in red light white objects appear red even to someone with perfect eyesight. Surely, this is an example of a well

³⁴ *ST* 1a q78 a3c. Est autem sensus quaedam potentia passiva, quae nata est immutari ab exteriori sensibili. Exterius ergo immutativum est quod per se a sensu percipitur...

³⁵ *De Anima*. III 6 .

³⁶ *ibid* .

³⁷ *ST*1a q85 a 6c. Sensus enim circa proprium objectum non decipitur, sicut visus circa colorem; nisi forte per accidens, ex impedimento circa organum contingente, sicut cum gustus febrientium dulcia iudicat amara, propter hoc lingua malis humoribus est repleta. Circa sensibilia vero communia decipitur sensus, sicut in dijudicando de magnitudine vel figura.

functioning sense being deceived with respect to its proper object? Does Aquinas really want to claim that the sense of sight is not in error in this case? He can't, for instance, just put it down to an erroneous judgment being made by the intellect as it acts on the sense images because the colour which the sense apprehends is red, in the above example, not the white that the object actually is. Thus the intellect is presented with a red sense image and all the intellect can do is make a judgment on the basis of this sense image.³⁸ In the case of common sensibles he puts error down to a mistake by one of the internal senses, but since the sense's judgment about its proper object takes place spontaneously such factors are not applicable in this instance.³⁹

Initially, most of his explanations accounting for errors in the grasp of proper objects seem just as unconvincing as that outlined above in *ST* 1a q85 a6. In *ST* 1a q17 a2 where Aquinas discusses the issue of falsity occurring in the senses he maintains the same position as he does subsequently in question 85 and other places, such as in *In Meta* IV 12:

It [a sense] does not do this [make mistakes] with regard to its proper sensible object except perhaps when the sensory organ is indisposed.⁴⁰

In *lectio* 14 of the same book, arguing against the view that truth is in appearances, he offers a further clarification, that error is caused by some impediment of nature affecting the imagination (*phantasia*):

First the proper cause of falsity is not the sense but the imagination, which is not the same as the senses. That is to say, the diversity of judgments made about sensible objects is not attributable to the senses, but to the imagination, in which errors are

³⁸ Aquinas admits this in *DV* q1 a11 where he states that, "the sense always produces a true judgment in the intellect with respect to its own condition, but not always with respect to the condition of things." (Sic ergo sensus intellectui comparatus semper facit veram existimationem in intellectu de dispositione propria, sed non de dispositione rerum). In the above case while the actual condition of the object is white, the condition of the sense organ is that it is sensing something red. This redness is what the intellect perceives because it cannot be mistaken about sense images, despite the actual sense image itself being mistaken.

³⁹ *DV* q1 a11. According to Aquinas the soul has four internal sense powers: the common sense, imagination, instinct and memory. The common sense discriminates between different sense perceptions. The imagination [sometimes called *phantasia* or *imaginativam*] retains the forms grasped by sense. Memory is the reminiscence of such forms. In man, instinct is called the cogitative power. It is this power which judges and compares common sensibles and accidental sensibles and it is here that error can occur regarding such sensibles. Strictly speaking an argument could be made for looking at the internal sense powers in the following section on the psychological component of perceptual knowledge. However, of greater importance to us is the external senses and their essential role of providing sense images on which the intellect will act. For that reason it is sufficient for us to mention the internal sense powers in passing and devote more attention to the role of the external senses and intellectual processes which occur as a consequence. We ought also to mention that describing these internal powers as 'senses' can lead to confusion. They have very little in common with the external powers which we understand to be the five senses. Cf. *ST* 1a q 78 a4c for Aquinas' discussion on the internal sense powers.

⁴⁰ *loc. cit* Fallitur enim sensibilibus communibus et per accidens, licet non de sensibilibus propriis, nisi forte ex indispositione organi.

made about sensory perceptions because of some natural object.⁴¹

He goes on to clarify further the nature of this impediment which leads to mistakes being made about proper sensibles. Such mistakes:

are attributable not to the senses but to the imagination; for when the imagination is subject to some sort of abnormality, it sometimes happens that the object apprehended by a sense enters the imagination in a different way than it was apprehended by the senses.⁴²

The case of the madman is then cited as an example. However, blaming one of the internal senses doesn't really address the problem raised by the white object in red light example, that well functioning senses can be mistaken with respect to their proper objects: sane people make this error as much as lunatics.

However, in *DV* q 1 a1 1c, he does offer a more flexible and convincing account of the senses' infallibility which does address the white object, red light problem. He writes:

the judgment of sense about proper sensibles is always true unless there is an impediment in the organ or in the medium.⁴³

Factors, other than a deficient organ, can lead to error. In the case of the white object seen in red light, it is the medium, the light itself which leads to the erroneous apprehension. Circumstances in the medium can lead to the senses being mistaken.

This notwithstanding, Aquinas' point is that *ceteris paribus*, in normal circumstances our senses, when functioning properly, will not be mistaken with respect to their proper objects. Or to put it another way, they are reliable. The reliability of the senses is part of a wider reliabilist overtones that we saw Stump and Kretzmann attribute to him.⁴⁴ Thus in the majority of cases, senses, such as sight, are not mistaken with regard to their proper objects. For this reason when the intellect judges that it is seeing something green this is because it is seeing something green. It is direct realism at its most direct. *Pace* Chisholm there is no need for elaborate discussions on 'being appeared to greenly' mental states before we can say that I see something green. In any case, as far as this analysis of the metaphysical component is concerned the instances in which the senses may be mistaken with respect to their proper objects are not directly relevant. The relevant point, for us, is that there is something there

⁴¹ Quorum primum est quod sensus non est proprie causa falsitatis, sed phantasia, quia non est idem sensui; quasi dicat, diversitatis iudiciorum, quae dantur de sensibilibus, non provenit ex sensu, sed ex phantasia, ad quam propter aliquod impedimentum naturae proveniunt deceptiones sensuum.

⁴² Et si obiiciatur quod aliquando etiam circa sensibilia propria error accidit, respondet quod hoc non est ex sensu, sed ex phantasia, per cuius indispositionem aliquando contingit quod id quod per sensum accipitur, aliter ad ipsam perveniat quam sensu percipiatur.

⁴³ Unde sensus iudicium de sensibilibus propriis semper est verum, nisi sit impedimentum in organo, vel in medio.

⁴⁴ Stump 1992, page 147.

whose sensible properties have been grasped,⁴⁵ a grasping which answers *an sit?* in the process of perceptual knowledge. It is as if, via the sense images the intellect is able, to borrow Nozick's phrase, to track the existence of external beings.

Finally, lest there be any misunderstanding we are not suggesting that in the case of perceptual knowledge *an sit?* is explicitly asked in the way one would if one were considering knowledge of such entities as God, evil, vacuum or 'goatstag'.⁴⁶ We do not ask, is there something there? We just see that there is a thing there. Sensory experience is not an enterprise which we can consciously intervene in, we normally and unquestioningly accept, to adapt Quine's phrase, such torrential input every moment of our life. Implicit in this sensory experience is the evidence to answer *an sit?* as, on the basis of this experience, the intellect grasps being external to it while seeking to discover what it is that is there.

Even in those instances when, once the intellect has made its judgment, one is not sure what it is that is there, whether it is a man or a tree, a table or chair, it is nonetheless accepted that there is something there. This will be a significant point in the conclusions which we will draw from our analysis of Aquinas' account of perceptual knowledge, after we consider the psychological component. For the moment we conclude this consideration of the metaphysical component by simply reiterating that as the external existent sets the sensory powers into action, there is an answer to '*an sit?*' We know that it is: this is the metaphysical foundation in perceptual knowledge, now we turn to what is it?

b. The psychological component

Despite the fundamental role which we have assigned to knowing *that something is* in our immaterial, universal and necessary knowledge of material reality, man's natural desire to know is essentially a desire to know *what* something is. This search for the answer to *quid est?* with respect to the objects of material reality takes us to the heart of Aquinas' account of perceptual knowledge: the intellect's grasp of its proper object, the "whatness of material things abstracted from the sense images"⁴⁷ and its subsequent judgments. Aquinas' description of the intellect's quest for *quid est?* in the *Prima Pars* relies heavily on his description of the processes of the intellectual part of the soul and the relationship between the intellect and the senses. For this reason our consideration of *quid est?* in this analysis, is given under the heading, the psychological component.

Just what is abstracted by the intellect from the sense images and what the intellect grasps in

⁴⁵ Someone may ask about the issue of hallucination, surely in this case we think that something is there when it isn't? This could be a problem, however, stressing the proper functioning of faculties ought to legislate for the matter of hallucination. We will return to this later.

⁴⁶ In regard to goatstag see *In P.A.* II 6.

⁴⁷ *ST* 1a q85 a8c *Dicendum quod objectum intellectus nostri, secundum praesentem statum, est quidditas rei materialis quam a phantasmatis abstrahit.* We will use essence and its synonym quiddity interchangeably.

its first act will be a central concern of this analysis of the psychological component because it is on the basis of what is grasped in the first act that the intellect forms judgments such as, 'Socrates is a white man,'⁴⁸ judgments which are indicative of what we take perceptual knowledge to be. To aid us in this task we will use as a catalyst two recently published articles by Joseph McDermott 'The Analogy of Human Knowing in the *Prima Pars* part I and part II.'⁴⁹ Both articles are wide ranging in the material which they cover, some of it the similar to issues we outlined in chapter one: the relation of the soul and the body,⁵⁰ the soul's potentiality,⁵¹ man's place in the hierarchy of creation,⁵² the soul's self-knowledge,⁵³ the separated soul.⁵⁴

Of particular interest to us is what McDermott refers to as the ambivalence of abstraction⁵⁵ and the ambiguity of conversion.⁵⁶ Abstraction and conversion are of crucial importance in Aquinas' account of human knowledge. Consideration of McDermott's interpretation will show the complexity of Aquinas' theory, but also serve to clarify what is abstracted by the intellect from the sense images, what it means for the intellect to grasp a quiddity, how it is never mistaken in this apprehension, in short how the intellect formulates the answer to *quid est?* With respect to the abstraction McDermott writes:

Abstraction as an intellectual process exhibits an ambivalence regarding its object: sometimes a pure form, at other times the essence with an indeterminate reference to (common) matter.⁵⁷

In one sense, McDermott's theory of an ambivalence of abstraction is more pertinent for a discussion of what the intellect grasps, and so enabling it to answer *quid est?*, than is the matter of *conversio ad phantasmata*. However, McDermott's so called ambiguity over conversion includes reference to the abstraction constitutive of the first act of the intellect discussed by Aquinas in *ST* 1a q84 a6c and q85 a1.

We gave a fairly standard explanation of this activity in chapter one: the intellect, because it

⁴⁸ As we saw in the sketch of intellectual acts in chapter one it is at this point in the intellect's operations that truth and falsity become possible. It is also at this point that the Intellect can claim to know something insofar as it has judged that what it has formed corresponds to the real existence of the object in the world. A further intellectual operation is possible, reasoning: the intellect can reason from one piece of knowledge to another. It is this operation that is the basis of *scientia* and for this reason this operation will be dealt with in the next chapter when we consider the relationship between perceptual knowledge and *scientia*.

⁴⁹ McDermott 1996, pages 261-268 and pages 501-525.

⁵⁰ *ibid* page 263ff.

⁵¹ *ibid* page 267ff.

⁵² *ibid* page 280ff and 514ff.

⁵³ *ibid* page 509ff.

⁵⁴ *ibid* page 513ff.

⁵⁵ *ibid* page 271ff.

⁵⁶ *ibid* page 275ff.

⁵⁷ *ibid* page 501.

can only grasp universals directly, must, in a judgment following the grasp of the quiddity, turn to the sense images (*conversio ad phantasmata*) in order to know the singular. According to McDermott the story is not so simple. As well as meaning this, it can also refer to the abstraction which grounds the first act of the intellect:

The phantasm's "mode of existing" must be changed before anything can be impressed on the passive intellect. At this point in the intellectual process the agent intellect intervenes to effect the requisite change.....This "conversion" apparently causes the abstraction of the "likeness."⁵⁸

Thus, says McDermott:

This *conversio* can be interpreted both as the conceptualisation preceding judgment and as the judgment following conceptualisation.⁵⁹

Given this interpretation, we will consider his argument for the ambiguity of conversion before moving on to look at the question of what is abstracted.

McDermott cites two extracts from the *Prima Pars* as evidence of ambiguity. Firstly, *ST* 1a q85 a1 ad3:

By the power of the agent intellect there results a certain likeness in the possible intellect from the conversion of the agent intellect over the phantasms; and this likeness is representative of those realities, of which there are phantasms, only with regard to the nature of the species.⁶⁰ [McDermott's translation]

ST 1a q86 a1 on whether the intellect knows singulars is cited as containing the second way of understanding conversion. McDermott translates the relevant sections as:

Also after it abstracted the intelligible *species*, [our intellect] cannot understand in act except by turning itself to the phantasms in which it understands the intelligible *species*. [His emphasis]⁶¹

Herein, according to McDermott, lies the ambiguity: the same act refers to two quite distinct activities of the intellect, one prior to the first act and one subsequent to the second act. However, closer consideration of the issue of *conversio ad phantasmata* reveals that there is no ambiguity, just the same term used in two different contexts which are easily identifiable.

First, *ST* 1a q85 1 ad 3 is not proposing a novel use of *conversio ad phantasmata*. It is merely stating the obvious and reiterating what is said elsewhere that all human knowledge comes from the senses and so in order to know, the agent intellect must turn to the phantasms in order to abstract from them intelligible species:

⁵⁸ *ibid* page 275.

⁵⁹ *ibid* page 276.

⁶⁰ Sed virtute intellectus agentis resultat quaedam similitudo in intellectu possibili ex conversione intellectus agentis supra phantasmata, quae quidem est repraesentativa eorum quorum sunt phantasmata, solum quantum ad naturam speciei.

⁶¹ The full extract of the pertinent section reads: Indirecte autem, et quasi per quandam reflexionem, potest cognoscere singulare: quia sicut supra dictum est, etiam postquam species intelligibiles abstraxit, non potest secundum eas actu intelligere nisi convertendo se ad phantasmata.

It is impossible for our intellect, in its present state of being joined to a body capable of receiving impressions, actually to understand anything without turning to sense images.⁶²

In this sense, there must be a conversion before every conceptualisation. *ST* 1a q86 a1, on the other hand, uses the same terminology to refer to a quite different process, that by which the intellect knows singulars indirectly. As we said above, this has been the traditional understanding of *conversio ad phantasmata*, a kind of quasi-reflection that the intellect indulges in, in order to know the singular. *ST* 1a q85 a1 ad5 actually brings together both senses:

Our intellect both abstracts species from sense images- in so far as it considers the nature of things as universal- and yet, at the same time, understands these in the sense images, since it cannot understand even the things from which it abstracts species without turning to sense images.⁶³

The two uses of conversion are obvious. The intellect must turn to the sense images in order to abstract the intelligible species. Such activity is the intellect's only means of acquiring them. With such intelligible species the intellect can form judgments such as 'cats are four legged furry animals.' This judgment can be made without reference to any particular cat. However, the intellect can also form judgments about particular cats, even the cat from which it has abstracted the species 'cat.' However, to make this judgment about a particular cat, that is, to know the singular, the actual cat, Tibbles, the intellect must turn to the sense images, in the usual sense of the quasi-reflection labelled *conversio ad phantasmata*. Simply, the same term '*conversio ad phantasmata*' is used in two different contexts, both of which are readily apparent. There is no ambiguity, it merely reinforces the intellect's dependence on the senses.

The ambivalence of abstraction, as McDermott calls it, actually concerns two distinct issues: the method of abstraction and what is abstracted. Regarding what is abstracted he writes:

It [what is abstracted] is described in turn as the form, the species and the universal. Indeed the universal is defined precisely as "what is abstracted from individual matter" (*ST* 1a q86 a1).⁶⁴

He then goes on to discuss the various ways in which Aquinas uses these different terms and the apparent connections which Aquinas draws between them. We will look closely at what McDermott has to say regarding this ambiguity by examining the various textual references he cites in his article. Prior to this we must look at McDermott's account of the process of abstraction.

⁶² *ST* 1a q84 a7 Dicendum quod impossibile est intellectum nostrum, secundum praesentis vitae statum quo passibili corpori conjungitur, aliquid intelligere in actu, nisi convertendo se ad phantasmata.

⁶³ Ad quintum dicendum quod intellectus noster et abstrahit species intelligibiles a phantasmatibus, in quantum considerat naturas rerum in universali; et tamen intelligit eas in phantasmatibus, quia non potest intelligere etiam ea quorum species abstrahit, nisi convertendo se ad phantasmata, ut supra dictum est.

⁶⁴ McDermott 1996, page 271.

Processes, rather than process would be a more accurate description. According to McDermott, in accord with his “oscillating use of terms” [the ambiguity of *conversio* and the double understanding of abstraction: pure form and quiddity]⁶⁵ St. Thomas proposed a double understanding of abstraction:

One way of abstraction is by “composition and division, as when we understand that something is not in another or is separated from it.” The other way is by “simple and absolute consideration, as when we understand one [thing or aspect] while considering nothing about another.” The former corresponds to a judgment while the latter is apparently pure conceptualisation. For falsity can apply to the former and not to the latter.⁶⁶

The process of abstraction can take two forms according to McDermott, one described in terms of the first act of the intellect, the other described in terms of the second act of the intellect. *Prima facie* such an understanding seems mistaken. How could such acts be constitutive of the process of abstraction, when they themselves actually result from it? At the heart of McDermott’s argument lies what Aquinas writes in *ST* 1a q85 a1 ad1. Closer scrutiny of this text reveals McDermott’s error.

In this passage Aquinas is responding to the criticism that the intellect cannot understand corporeal things by abstraction from the sense images since this would mean that the intellect understands the object other than it really is, that is, separated from matter, as opposed to what it really is, a material reality. The intellect would therefore be in error. To this argument St. Thomas responds by citing two senses of abstraction, one which is erroneous the other which isn’t:

Abstraction occurs in two ways: one, by way of combining and separating, as when we understand one not to be in another or separate from it; two, by way of simple and absolute consideration, as when we understand one without considering the other at all.

And so although for the intellect in the first way to abstract objects which in reality are not abstract is not without falsehood, it is not in the second way, as clearly appears with sensible realities. For example, were we to understand or say that colour does not exist in a coloured body, or that it exists apart from it, there would be falsehood in the opinion or statement. Whereas were we to consider colour and its properties, without any consideration of the apple which has colour, and go on to express verbally what we thus understand, the opinion would be without falsehood. For being an apple is not part of the definition of colour, and thus nothing prevents colour from being understood apart from the apple being understood.

I claim like wise that whatever pertains to the definition of any species of material reality, for instance stone or man or horse, can be considered without individuating conditions which are no part of the definition of the species. And this is what I mean by abstracting the universal from the particular, the idea from the sense images, to

⁶⁵ McDermott 1996, page 276.

⁶⁶ *ibid* page 276.

consider the nature of the species without considering individuating conditions represented by sense images.⁶⁷

There are, as Aquinas points out, two senses of abstraction, but it doesn't follow that they have the significance that McDermott assigns to them because Aquinas's use of simple consideration and composition and division in the above extract is merely illustrative, used to attack the criticism which has been made.

Recall that this criticism suggested that the intellect is in error because abstraction means that we understand things differently from their actual existence. Aquinas agrees that the criticism is valid, that the intellect would be in error, if the abstraction in question were the kind of abstraction illustrated by the composition and division example (actually the examples he uses are examples of division): abstracting colour from a thing and saying that colour does not exist in a coloured body. That is akin to abstracting a universal from a particular and saying that it doesn't exist in the particular, material thing. But Aquinas says this is not what is meant by abstraction of the universal from the particular. He is clear that we do not understand the species of stone as existing apart from matter because clearly the species of stone does exist in the particular stone, as colour does exist in a coloured body.

The abstraction from matter, which he proposes, is illustrated by our ability of simple and absolute consideration. As he points out, in this activity we can understand colour and its properties without understanding the apple whose colour it is. We are able to abstract colour and consider it separately from its individuating conditions in the coloured body. Any statement made about colour and its properties in this regard would be without error: it is a simple consideration of colour. This kind of abstraction is indicative of that which takes place when the agent intellect abstracts from the sense images: we can abstract the form or whatever pertains to the definition of any species without considering the actual thing which has that particular nature. This abstraction leads to a simple apprehension, the first act of the intellect. We are not making a judgment that the nature, form or universal doesn't exist in a particular thing, so it is not erroneous. We are merely abstracting it, as we can colour. As he

⁶⁷ Ad primum ergo dicendum quod abstrahere contingit dupliciter. Uno modo, per modum compositionis et divisionis; sicut cum intelligimus aliquid non esse in alio, vel esse separatum ab eo. Alio modo, per modum simplicis et absolutae considerationis; sicut cum intelligimus unum, nihil considerando de alio.

Abstrahere igitur per intellectum ea quae secundum rem non sunt abstracta, secundum primum modum abstrahendi non est absque falsitate. Sed secundo modo abstrahere per intellectum quae non sunt abstracta secundum rem, non habet falsitatem; ut in sensibilibus manifeste apparet. Si enim intelligamus vel dicamus colorem non inesse corpori colorato, vel esse separatum ab eo, erit falsitas in opinione vel in oratione. Si vero consideremus colorem et proprietates ejus, nihil considerantes de pomo colorato, vel quod sic intelligimus, etiam voce exprimamus; erit absque falsitate opinionis et orationis. Pomum enim non est de ratione coloris; et ideo nihil prohibet colorem intelligi, nihil intelligendo pomo.

Similiter dico quod ea quae pertinent ad rationem speciei cujuslibet rei materialis, puta lapidis aut hominis aut equi, possunt considerari sine principiis individualibus, quae non sunt de ratione speciei. Et hoc est abstrahere universale a particulari, vel speciem intelligibilem a phantasmatis, considerare scilicet naturam speciei absque consideratione individualium principiorum, quae per phantasmata repraesentantur.

says in *ST* 1a q85 a1c:

..it is proper for it [the intellect] to know forms which, in fact, exist individually in corporeal matter, yet not precisely as existing in such or such individual matter. Now to know something which in fact exists in individuated matter, but not as existing in such or such individual matter is to abstract a form from individual matter, represented by the sense images.⁶⁸

Simple consideration and composition and division are used to illustrate two senses of abstraction. In particular the abstraction associated with composition and division is used to illustrate the erroneous understanding of abstraction: that, if this were the actual meaning of abstraction from the sense images, the intellect would, indeed, be in error. But this is not what is meant, what is meant is illustrated in the case of simple consideration. For Aquinas there is only one type of abstraction from the sense images, that which results in the intellect's first act: simple apprehension. I conclude that McDermott is mistaken in his interpretation. Now we turn to the other aspect of the ambivalence of abstraction and consider just what is abstracted and apprehended.

Earlier we noted that McDermott identified various candidates regarding what is abstracted: form, species, universal and essence. McDermott notes that various connections are made between these candidates:

At times the *species* and the universal are identified (*ST* 1a q85 a1c; q86 a1 ad1) or they are distinguished only insofar as the *species* is that by "by" or "through" which the universal is understood (*ST* 1a q85 a1c; q86 a1). Similarly the form and the *species* are considered equivalents; "the likeness of the reality understood, which is the intelligible *species*, is the form according to which the intellect understands" (*ST* 1a q85 a2c; q14 a1c). Yet form and the *species* are at times carefully distinguished. [His emphasis]⁶⁹

That various terms are used cannot be denied. Nevertheless some clarity can be shed on the matter. We'll do this by first considering the issue of species, then, in turn, look at form, essence and universals.

McDermott cites various texts [*ST* 1a q79 a4 ad4; q84 a5c; q86 a1c; a2 ad2] to support his thesis that species are abstracted. Consideration of these texts show that there are two senses of species. The first sense of species, *species rerum*, pertains to the nature or essence of a thing:

An intellectual soul is indeed actually non-material, but it is in a state of potentiality

⁶⁸ Et ideo proprium ejus est cognoscere formam in materia quidem corporali individualiter existentem, non tamen prout est in tali materia. Cognoscere vero id quod est in materia individuali, non prout est in tali materia, est abstrahere formam in materia individuali quam representant phantasmata.

⁶⁹ McDermott 1996, page 271.

as regards grasping the natures of things [*determinatas species rerum*].⁷⁰

As the phrase “species taken from things” indicates this sense of species is abstracted.⁷¹

While the other sense of species is also abstracted it differs significantly from *species rerum*. This sense refers to what the intellect manufactures in its operations, which is why its proper name is intelligible species, *species intelligibilis*. Strictly speaking intelligible species are the means by which we have knowledge of reality, they are not themselves the objects of our knowledge. As Aquinas states in response to arguments that intelligible species are what we understand:

..Therefore the species is not *what* is understood, but *that by which* the intellect understands.⁷² [Editor’s emphasis]

The clarity of Aquinas’ position on what we know aside, there is room for confusion. Confusion may emerge because ‘intelligible species’ can be used in a broad sense to describe intellectual entities, such as forms, universals and even the *species rerum* which the intellect grasps by abstraction from material reality, yet, as in *ST* 1a q86 a1c where Aquinas says that the intellect knows the universal directly by means of a species⁷³, *species intelligibilis* can also be used in a much narrower sense to refer solely to abstracted forms, the means by which the intellect knows. Only by recognising this can we avoid the apparent circularity that a universal is an intelligible species which is also known by an intelligible species.

These broad and narrow uses of ‘intelligible species’ are the explanation of McDermott’s observation that species is sometimes identified with universal and form, but at other times species is distinguished from forms and universals. The sense of species being used in a given context determines whether form or universal is identified with or distinguished from it. Apart from identifying the broader and narrower sense of *species intelligibilis*, there is no hard and fast rule that can be formulated in this regard, only by considering each context can we decide which sense of species is being used. So for example, Aquinas says in *ST* 1a q85 a2c that it is by means of a likeness [*similitudo*] of the visible thing that the faculty of sight sees. This likeness is the vehicle by which we see the object in the world. Similarly, it is by means of intelligible species, an intelligible likeness of the thing understood, that the soul knows things which are outside of it. These different likenesses in the sense organs and the intellect, are the vehicles *by* which we sense and understand things in the world. In the case of the intellect the intelligible species are the forms *by* which the soul understands its direct

⁷⁰ *ST* 1a q79 a4 ad4 Ad quantum dicendum quod anima intellectiva est quidem actu immaterialis, sed est in potentia ad determinatas species rerum. It has to be noted that the Blackfriars’ translation doesn’t offer a literal translation of ‘*determinatas species rerum*’ ‘determinate species of things’, preferring ‘the natures of things’ instead. The use of the word determinate indicates the sense in which species is used here; that which makes this thing to be one of the kind which it is, its determining factor.

⁷¹ See also *ST* 1a q85 a1 ad 4. Ad quantum dicendum quod phantasmata et illuminantur ab intellectu agente, et iterum ab eis, per virtutem intellectus agentis, species intelligibiles abstrahuntur.

⁷² *ST* 1a q85 a2sc. Ergo species intelligibilis non est quod intelligitur, sed id quo intelligit intellectus.

⁷³ Sic igitur ipsum universale per speciem intelligibilem directe intelligit...

object, the quiddity of material things. This quiddity is a universal: a universal *which* will be known *by* means of a likeness, the form of the thing existing in the intellect. Therefore, in one sense a universal is an intelligible species yet, in another sense it will be known by an intelligible species.

McDermott's concern draws our attention to a situation in which there can easily be misunderstanding. We have attempted to remove the danger of confusion and misunderstanding: when Aquinas talks of *species* he may be referring to *species intelligibilis* or *species rerum*. Moreover, *species intelligibilis* can be used in either a wide or narrow sense. Consequently, great care must be taken to determine which sense of *species* is being used in a given context. In the following discussion we will see *species* used in its various senses.

One kind of *species intelligibilis* is an abstracted form. Form is a complex notion. For our purposes we will take it to mean that which determines something to be one of the kind which it is. Thus it is the form catness which determines that the particular parcel of matter which we call Tibbles is a cat. As Aquinas wrote in discussing the soul's role as the form of the body:

Everything has its species determined by its formative principles.⁷⁴

Earlier, when we considered McDermott's account of two types of abstraction we noted that in *ST* 1a q85 a1c Aquinas wrote:

It is proper for it [the human intellect] to know forms which, in fact, exist individually in corporeal matter, yet not precisely as existing in such or such individual matter.⁷⁵

It is the form of the object which the intellect grasps by abstraction from the sense images. So, in the case of Tibbles, the agent intellect abstracts the form catness from the particular existent, we saw this in *ST* 1a q85 a2c, just cited. Haldane describes Aquinas' position:

...the forms or natures [quiddities] which give structure to the world, and the concepts which give 'shape' to thought, are one and the same. Thus a cat and the idea of a cat differ not in nature, that is *catness* in both cases, but in modes of the exemplification of this nature. Felix, instantiates (or better, from the point of view of avoiding Platonism, actualises a case of) felinity *in esse naturale*, and in my thinking of him actualises the very same form (qua universal) *in esse intentionale*.

[Author's emphasis]⁷⁶

Sandra Edwards expresses similar sentiments:

Once we abstract from existence, there is simply no difference between the form or

⁷⁴ *ST* 1a q76 a1c Sortitur autem unumquodque speciem per propriam formam.

⁷⁵ Et ideo proprium ejus est cognoscere formam in materia quidem corporali individualiter existentem, non tamen prout est in tali materia.

⁷⁶ Haldane 1994, page 21. The distinction Haldane makes here between *esse intentionale* and *esse naturale* derives from Peter Geach's famous paper 'Form and Existence' *Proceedings of the Aristotelian Society 1954-1955* pages 250-276. Anthony Kenny also discusses the matter in his book *Aquinas* : cf Kenny 1980, page 79ff.

nature of the object known and the form or nature received by the intellect.⁷⁷

Edwards is a little careless to run together form and nature. The terms are not strictly synonymous. Nevertheless, the sentiments of her comments and those of Haldane clarify succinctly Aquinas' thought. Furthermore, these extracts also raise important issues which will be addressed in due course: the question of just how the intellect grasps forms from the sense images; what is meant by a form having intentional and natural being. However, we leave these issues for the moment as we continue our consideration of abstraction.

It is the form of the thing which the intellect abstracts. This is how it understands material things. In outlining this account Aquinas notes a possible objection:

Nothing can be understood without something which is required for its definition. Hence material things cannot be understood without matter. But matter is the principle of individuation. Therefore material things cannot be understood by abstracting the universal from the particular, which is the same as abstracting species from the sense images.⁷⁸

The putative objector's point, one which we have already looked at in discussing McDermott's theory of dual abstraction, can be made more explicit: even granted that the forms which give structure to the world and the concepts which constitute thought are one and the same, can we really claim that we can understand things by grasping their forms, when their forms lack an essential attribute of the thing: matter? Yes, for reasons which have been stated earlier. The doctrine of abstraction does not say that the form exists apart from matter in reality:

Hence, the understanding would be false if one should so abstract the species of stone from matter that he would understand it to exist apart from matter, as Plato held.⁷⁹

This point can be developed. The intellect considers the thing by grasping its form, and this grasp is immaterial. But, it does not follow that the consideration of the thing, which consists in such a grasping of form, is a consideration of the thing as if the thing were immaterial. It is by these forms that we know material things. In knowing material things, for example, a cat, the intellect does not have to separate the notion of cat from the notion of matter. Aquinas attempts to explain this complex issue in his response:

Some have thought that the species of natural things is all form, that matter is not a part of the species; but if this were so, matter would not be included in definitions of natural things....The intellect abstracts the species of a natural thing from individual

⁷⁷ Edwards 1985, page 82.

⁷⁸ *ST* 1a q85 a1.2 *Praeterea, res materiales sunt res naturales, in quarum definitione cadit materia. Sed nihil potest intelligi sine eo quod cadit in definitione eius. Ergo res materiales non possunt intelligi sine materia. Sed materia est individuationis principium. Ergo res materiales non possunt intelligi per abstractionem universalis a particulari, quod est abstrahere species intelligibiles a phantasmatis.*

⁷⁹ *ST* 1a q85 a1 ad1 *Unde falsus esset intellectus, si sic abstraheret speciem lapidis a materia, ut intelligeret eam non esse in materia, ut Plato posuit.*

sensible matter, but not common sensible matter.⁸⁰

From the wider context it is apparent that species is used here in the sense of essence. The underlying thrust of the argument is this: the intellect abstracts the form of a material thing and knows by means of such forms. The abstracted form, as we have seen is the means by which we understand. What we understand is the quiddity of the thing. Unlike form, essence or quiddity also contains a reference to matter, as we saw in chapter one, common matter. For this reason with respect to a material thing's definition, what the thing is, essence, not form, is offered as the definition of the thing because strictly speaking form lacks this essential material dimension.

This grasp of essence is the intellect's grasp of its proper object and is the answer to *quid est?* This grasp of essence will be closely scrutinised. Before we begin that analysis we will look at the final candidate of abstraction which McDermott offers: the universal.

Aquinas uses the term 'universal' in several different ways, some of which are more relevant to our consideration of *quid est?* than others, but none of which are really irrelevant. One sense of universal is indicated by the following

With respect to space, for instance, when a thing is seen from a distance, it is recognised as a body before it is recognised as an animal, as an animal before being recognised as a man, and as a man before Socrates or Plato.⁸¹

The sense of universal discussed here is that of something more general to something less general. So, for example, with respect to cats and dogs, animal is a universal concept because both cats and dogs come under the term animal. We can know such 'universal wholes', as Aquinas calls them, either distinctly, that is we can know that the class of animal includes such things as cats and dogs, or indistinctly, we just know the class of animal without knowing what comes under this universal.⁸² At this point in our discussion, this sense of universal is not particularly relevant. It will be later.

In *The Commentary on the Metaphysics* Aquinas notes two other senses of universal.

It [the universal] can be taken to mean the nature of the thing to which the intellect attributes the aspect of universality, and in this sense universals such as genera and species signify the substance of things inasmuch as they are predicated quidditatively; for animal signifies the substance of the thing of which it is predicated, and so also does man. Second a universal can be taken insofar as it is universal, and insofar as the nature predicated of a thing falls under the aspect of

⁸⁰ *ibid* ad 2. Ad secundum dicendum quod quidam putaverunt quod species rei naturalis sit forma solum, et quod materia non sit pars speciei. Sed secundum hoc, in definitionibus rerum naturalium non poneretur materia.....Intellectus igitur abstrahit speciem rei naturalis a materia sensibili individuali, non autem a materia sensibili communi.

⁸¹ ST 1a q85 a3c Secundum locum quidem, sicut, cum aliquid videtur a remotis, prius deprehenditur esse corpus, quam deprehendatur esse animal; et prius homo, quam Socrates vel Plato.

⁸² *ibid*.

universality, i.e. insofar as animal or man is considered as one-in-many. And this is the sense the Platonists claimed that animal and man in their universal aspect constituted substances.⁸³

Both senses are closely related. The first sense noted is the sense in which the universal can be said to indicate what the thing is. In other words, this sense of universal is just another name for nature or essence which signifies what a thing is. Note however, that such signification can take place on either the level of genus or species. This will be of relevance later.

The second sense of universal in *In Meta VII.13* focuses on the actual issue of the universality of such natures, as opposed to the universal being the nature. Immediately following the extract taken from *In Meta VII. 13* Aquinas goes on to say that such universals, abstracted from individuating conditions, only exist in the mind and are not real substances as proposed by Plato. He stresses this point elsewhere, where drawing together both of the above senses, he writes:

..the one outside the many, not according to autonomous existence, but according to the consideration of the intellect which considers a nature, say man, without referring to Socrates and Plato. But even though it is one outside the many according to the intellect's consideration, nevertheless in the sphere of existence it exists in all singulars one and the same: not numerically however, as though the humanity of all men were numerically one, but according to the notion of species.⁸⁴

This is the sense of the one in the many, the sense in which the intelligible species, the nature, abstracted from matter is a universal and can be considered as such.⁸⁵ This is the sense which we have seen creeping up throughout our discussion of abstraction, the sense in which the intellect, for example, can grasp what man is and think about what man is, independently of any particular man. This is the sense in which both form and essence, although different, can be described as universals. In this sense the term 'universal' like the term 'intelligible species' is something of a catch all term. The ability to abstract the universal is the basis of science:

Science is had of things because there is found to be a one in many, as man in

⁸³ *In Meta . VII 13* Quod universale dupliciter potest accipi, uno modo pro ipsa natura cui intellectus attribuit intentionem universalitatis; et sic universalialia, ut genera et species, substantias rerum significant ut praedicantur in quid. Animal enim significat substantiam eius, de quo praedicatur, et homo similiter. Alio modo potest accipi universale in quantum est universale et secundum quod natura praedicata subest intentioni universalitatis: idest secundum quod consideratur animal vel homo, ut unum in multis, et sic posuerunt platonici animal et hominem in sua universalitate esse substantias.

⁸⁴ *In P.A. II 20*. Unum praeter multa non quidem secundum esse, sed secundum considerationem intellectus, qui considerat naturam aliquam, puta hominis, non respiciendo ad Socratem et Platonem. quod etsi secundum considerationem intellectus sit unum praeter multa tamen secundum esse est in omnibus singularibus unum et idem non quidem numero, quasi sit eadem humanitas numero omnium hominum sed secundum rationem speciei.

⁸⁵ *ST 1a q86 a1c*

common is found in all men, for there is no science of singular things.⁸⁶

In his *Commentary on the Posterior Analytics*, Aquinas says something very interesting about the universal, the one in the many:

Universals, from which demonstration proceeds, don't become known to us except by induction.⁸⁷

He expresses similar thoughts in *In P.A. II 20*. Commenting on that text Scott MacDonald makes the important point that Aquinas doesn't use induction in the sense of an inductive generalisation, but rather he uses it to describe the process of the intellect going through individual cases which cause the intellect to grasp the universals contained in the particulars.⁸⁸ This description of induction will be a key issue in our description of how the intellect abstracts from the senses.

Over the last few pages we have addressed some of the issues raised by McDermott and clarified what he considers to be ambiguities and ambivalences in Aquinas' thought. We have seen that there is no real ambiguity regarding *conversio ad phantasmata*. More importantly, we have also shown that there are not two senses of abstraction. Regarding what is abstracted we have shown how the various terms, species, form, essence and universal interconnect. At the outset of this discussion we said that our consideration of McDermott would serve as a catalyst for our consideration of how the intellect answers *quid est?* It serves as a catalyst in this regard: we have clarified abstraction and what is abstracted, but a far deeper question still remains: just how in its first act, does the intellect grasp the quiddity of the thing from the sense images, as Aquinas claims? Over the next few pages we will attempt to answer this question.

Given the connection between form and quiddity which we acknowledged above, our discussion will necessarily entail a consideration of the role of form in this process. Previously, when discussing the role of form in Aquinas' epistemology, we have made reference to the formal identity which exists between the object and the object as it is thought of. This identity, we saw, was expressed in terms of the natural being [*esse naturale*] of the form in the object and the intentional being [*esse intentionale*] of the form in the mind. We have seen John Haldane attempt to explain the identity. Haldane also discusses the identity in 'Forms of Thought', an article written for a work celebrating the philosophy of Roderick Chisholm.⁸⁹ He writes:

The application of the ontology of forms to the theory of cognition requires not only that there are natures but that these are open to radically different manners of

⁸⁶ *In Meta* III 10. Tertia ratio est quia scientia habetur de rebus per hoc quod unum invenitur in multis. Sicut homo communis invenitur in omnibus hominibus, non enim scientia de singularibus.

⁸⁷ *In P.A. I 30*. Universalia, ex quibus demonstratio procedit, non fiunt nobis nota, nisi per inductionem

⁸⁸ MacDonald 1993, page 183.

⁸⁹ Haldane 1997.

exemplification; more particularly, that one and the same form can exist both naturally and intentionally.⁹⁰

Chisholm once stated that attempts to make the doctrine of formal identity intelligible had been unsuccessful. Haldane recalls Chisholm's remarks.⁹¹ In the course of his discussion Haldane attempts to meet the challenge of explaining intelligibly the doctrine of formal identity:

Consider cases in which what John is thinking of is a man, or the universal Humanity. These entail that the same form is exemplified twice and it is John that does the exemplifying on both occasions. We might say that the generation of the humanity-of-John is something additional to exemplification as such; but we cannot escape tying some exemplifications to the existence of individualised forms. Consequently there is reason to distinguish between that sort of exemplification which occurs when so much stuff exhibits a certain nature, and which entails the existence of a singular form - a particular entity distinct from other specifically identical cases - and another kind of exemplification which involves the occurrence of the form as such, and not the generation of a case. This distinction, I suggest, provides a coherent interpretation of the theory of *esse naturale* and *esse intentionale*.Through experience and reason the subject comes to acquire concepts that are intentional counterparts of naturally existing substantial and accidental forms, and thereby an intrinsic connection between mind and world is established.⁹²

From a Thomist perspective Professor Haldane's account is an accurate and intelligible description of St. Thomas's thought; a coherent account of what is meant by a form having two manners of existence. Furthermore, he highlights, as we shall, the importance of experience. This praise aside, whether his non-thomist colleagues, particularly, the Roderick Chisholms of this world, those trained in the tradition of anglo-American analytical philosophy, find the account intelligible, is another matter.

In fact, I would suspect that they probably don't, not least because they consider form to be a mediaeval nonsense. Nevertheless, even if they did grant that there were such entities as forms, I suspect that they would still find the matter unintelligible. Much of the blame for this rests on the mystery which seems to surround a form existing in the world and then coming to exist in the mind. It is the same issue with respect to quiddities: it seems that intellect just magically grasps them. This is where Haldane's account and indeed accounts by other interpreters of St. Thomas are lacking, they don't really explain how the intellect comes to acquire the form or quiddity from the sense images, or as Haldane put it above "come to acquire concepts that are intentional counterparts of naturally existing substantial and accidental forms." They never really address the question we set ourselves above: just *how* in its first act, does the intellect grasp the quiddity of the thing from the sense images?

⁹⁰ *ibid* page 160.

⁹¹ *ibid* page 149.

⁹² *ibid* page 163.

Some commentators such as Owens see that task as outside the remit of epistemology:

The process by which the nature is abstracted from the individuals is not a concern of epistemology. It gives rise to difficult questions treated in metaphysics and in the philosophy of nature.⁹³

There is a sense in which Owens is correct. However, we would disagree with Owens' assertion that a consideration of this process of abstraction is not the concern of epistemology. Indeed we would go further and say that depending on how one approaches the issue, a digression into metaphysics and philosophy of nature is avoidable. It could be approached by closely analysing the working of the agent intellect and other issues such as *species impressa* and *species expressa*.⁹⁴ Such an approach would inevitably lead to the difficult issues of which Owens warns. However, in the pertinent sections of *ST* 1a q84ff while St. Thomas does speak of the role of the agent intellect and other aspects of human psychology, there is no indepth analysis of the psychological processes involved. For example, little mention is made of *species impressa*, *species expressa*. Aquinas approaches the issues of abstraction on a more general level, preferring to speak, as we have seen about *phantasmata* and *species intelligibilis*. For this reason, following St. Thomas' example, we will avoid too detailed an approach.⁹⁵ Like him, we will be more general in our treatment of the issues, analysing the process of abstraction by means of examples which will allow us to sketch broadly the issues involved without being distracted by the nuances of Aquinas' mediaeval psychology. Approaching the issues on this level we will see, *contra* Owens, how abstraction is a concern of epistemology because it illustrates the descriptive nature of Aquinas' theory of knowledge: it illustrates a central facet how the intellect answers *quid est?*

The first step in our analysis how a form can have *esse naturale* and *esse intentionale* and how the intellect grasps the quiddities of material things is to return to what Aquinas says regarding the formation of universals by induction. He writes:

For if many singulars are taken which are without difference as to some one item existing in them, that one item according to which they are not different, once it is received in the mind, is the first universal, no matter what it may be, i.e. whether it pertains to the essence of the singular or not. For since we find that Socrates and Plato and many others are without difference as to whiteness, we take this one item, namely white, as a universal which is an accident. Similarly because we find that Socrates and Plato and the others are not different as to rationality, this one item in which they do not differ, namely rationality, we take as a universal which is an

⁹³ Owens 1992b, page 140.

⁹⁴ *Species impressa* is a form abstracted from the sense images. *Species expressa* is a mental word or concept corresponding to this form.

⁹⁵ Admittedly, we are focusing on the psychological component of perceptual knowledge, however, there is a limit to the depth in which this component can be investigated while still maintaining that this is a work of epistemology and not psychology.

essential difference.⁹⁶

He goes on:

For sense knows Callias not only insofar forth as he is Callias, but also as he is this man; and similarly Socrates as he is this man. As a result of such an attainment preexisting in the sense, the intellective soul can consider man in both.⁹⁷

These are key texts. Of interest to us is the description of how universals are formed from information preexisting in sensory apprehension: the intellect, searching, as it were, for elements which things have in common, and through abstraction from the particular instances represented by the sense images, forming universal concepts.

The first extract describes how universal forms of accidental properties such as colour are formed. Universals can be either accidental or essential with respect to the object. Determining which is the case depends on recognising which attributes an object must have in order to be one of that kind. Thus, having the attribute of rationality is essential to being human, if a thing is not rational, it is not human. However, on the other hand, a thing may not be white, but may still be a human. Clearly such a recognition is a judgment made after the intellect has grasped its proper object in its first act and on the basis of our experience. In order to grasp that proper object, the intellect must be informed by the substantial form of the object. The second extract deals with this. It focuses not on the formation of universals of accidental properties, but the formation of universals of the natural kinds, the one in many, of which we saw St. Thomas speak. It is this which we are particularly interested in as we try to explain how a substantial form existing in *esse naturale* in the object comes to exist in *esse intentionale* in the intellect. We will approach the matter by means of an example.

Walking once through the local park I see two people exercising their pets. The first pet I can tell is a dog. I have seen dogs before, so I am able to classify the living parcel of hair that I see as a dog. When I look at the other pet I cannot tell what it is that is being exercised. It is clearly not a dog, it is too small. Nor is it a cat. All I can tell is that it is some kind of mammal.

In both perceptions the same process has occurred. My intellect abstracts from the sense images what it is that I am sensing. In the perception of the dog, the intellect abstracts assorted universals: the colour of the hair, it's shape. Powers are also universalised.⁹⁸

⁹⁶ *In P. A. II 20*. Si enim accipiantur multa singularia, quae sunt indifferentia quantum ad aliquid unum in eis existens, illud unum secundum quod non differunt, in anima acceptum, est primum universale, quidquid sit illud, sive scilicet pertineat ad essentiam singularium, sive non quia enim invenimus Socratem et Platonem et multo alios esse indifferentes quantum ad albedinem, accipimus hoc unum, scilicet album, quasi universale quod est accidens. Et similiter quia invenimus Socratem et Platonem et alios esse indifferentes quantum ad rationalem, hoc unum in quo non differunt, scilicet rationale, accipimus quasi universale quod est differentia.

⁹⁷ *ibid.* Sed tamen sensus est quodammodo etiam universalis. Cognoscit enim Calliam non solum in quantum est Callias, sed etiam in quantum est hic homo, et similiter Socratem in quantum tali acciptione sensus praeexistente, anima intellectiva potest considerare hominem in utroque.

⁹⁸ See *In P. A. II 20* where in relation to Plato and Socrates, rationality is taken as a universal.

Furthermore, as we saw above, the kind of thing which the object is also universalised. To understand how this is possible we must look at Aquinas' ontology. An object is not just a cluster of properties, nor is substance a bare particular, it cannot exist without any accidents. Hence the existence of a substance is indicated by the existence of the accidents which, of course, depend on substance for instantiation. The kind of thing a substance is determines the various powers and most of the accidental properties which it has.⁹⁹ Conversely, it is by considering such accidents and powers that a substance can be identified as one of a kind. Thus a particular substance is a man because it has the accidents and powers associated with that kind of substance: upright, rational, language-using biped: to use Haldane's phrase again, it exhibits a certain nature. Given these accidental properties and powers, the senses perceive a particular substance, a man. By considering various men, what they have in common, the properties and powers associated with that kind of thing, a universal form, or concept 'humanity' can be abstracted. This is how Aquinas can say that there is a likeness between the form as it exists in the individual and the form as it exists in the intellect. The features exhibited by the abstracted form correspond to the features found in individual humans. In *ST* 1a q85 a2c Aquinas tries to describe the likeness by using the analogy of heat: the heat of a heater is like that of the thing heated.¹⁰⁰ To get back to our example of the park, in the case of the dog, this object is recognised to be a dog because it is recognised to be an instantiation of the form 'caninity' which my intellect has formed over its many encounters with dogs. The quiddity which the intellect grasps is described by the concept 'dog'. A judgment can be formed: "there is a dog." Notice that experience plays an important role in this process. From previous experience I already had a grasp of the concept 'dog' and what it is to be a dog. Experience is crucial in the formation of such forms, and we shall argue, in the quiddity which the intellect is claimed to grasp. This is apparent in the case of the other animal.

In this case, the unknown animal will have various accidental properties and different powers which can be abstracted and universalised. However, given that I have never encountered such a beast before how can I claim to grasp the substantial form of the thing? Can we say that its substantial form is abstracted and universalised? Yes, but incompletely, because the abstracted accidents and powers will be indicative of the substantial form, in the way that the accidents and properties: upright, rational, language-using biped are indicative of the substantial form humanity. In this sense the substantial form is abstracted. However, given our ignorance of what kind of animal the creature is, the grasp of quiddity will be at the level of genus, as opposed to species as in the case of the dog. Given the properties and powers of the thing the concept used to describe it is 'animal.' It is up to us to discover what kind of animal has these properties and powers. Once we discover this we can classify it in a more specific way.

⁹⁹ Clearly some accidental properties are determined by extrinsic causes. The heat of a burning log is the result of the fire and has nothing to do with the fact that the log is a piece of wood.

¹⁰⁰ Ut calor calefaciens est similitudo calefacti; similiter forma secundum quam provenit actio manens in agente est similitudo objecti.

This highlights the importance of experience in the processes surrounding the abstracting of universal forms. Before I can claim to know the universal concept X that the thing instantiates I have to ask someone who knows, I have to discover to which species of animal the beast belongs and what this species is called in my community. Inquisitive as ever I walk over to the owner in the park and ask the owner, "What kind of animal is that?"

"It's a pine marten," he replies.

"Oh, so that's what it is." I reply.

I now know what kind of thing it actually is, as opposed to classifying it merely as a small, furry, four-legged animal. The intellect now has a clearer, grasp of the substantial form and knows the quiddity of the thing not at the level of genus, but the level of species.

The consequence of this analysis ought to be made clear. There is a sense in which the grasp of a quiddity can take place on various levels. Moreover, sometimes the complete substantial form of the thing is not abstracted by the intellect. The key to understanding this lies in one sense of the word 'universal', namely the first sense we outlined above: when something is seen from a distance we recognise it as a body, before recognising it as an animal and so on.¹⁰¹ Looking from a great distance, call this D₁, at an object in a field we would not want to say that the intellect is capable of fully abstracting the substantial form of the thing and grasping its quiddity. That would be absurd. All that can be abstracted is the form of a material thing, all that can be grasped is that it is a thing, a body, because that is all we can sense. Moving closer, call this D₂, we see that it is alive. Here what is abstracted and grasped pertains to the genus of animal. Moving closer still, at D₃, we can see what kind of animal it is. Knowing what a cow is, this substantial form is abstracted from the sense images and the quiddity grasped is 'cow'. To suggest that at D₁ the intellect could in some sense abstract and grasp what it did at D₃ is absurd. At D₁ we are experiencing it as a thing, so why should the form abstracted be much more specific? Such a suggestion would seem to suggest that the intellect has some kind of strange intuition and doesn't really need the senses: it undermines the thesis that what is abstracted depends on what the sense images present. It is not being suggested that different forms are being abstracted at the different stages, just that at each stage the form abstracted is more specific and consequently the grasp of a quiddity can take place on different levels. It highlights the intellect's dependence on the senses. Equally the issue of previous experience and knowledge, as we have seen can lead to quiddity being grasped on various levels.

An objector might raise this objection. A dog-lover is able to classify the various dogs he sees into different breeds, spaniel, beagle and so on. Does this mean that the substantial forms abstracted by the intellect of these experts is different and more detailed than that abstracted by the non-expert? That he abstracts the form spanielity as opposed to caninity?

¹⁰¹ For simplicity's sake we have ignored the case when, out of the corner of one's eye, one thinks that one has seen something move, but is not sure. It may indeed be the case on further investigation that one discovers that there is something there or it may simply turn out to have been a shadow.

No, while the expert may have various concepts such as poodle and Alsatian which correspond to various breeds of dogs, he still abstracts the substantial form caninity. To see this, consider the case of triangles, we can describe this triangle as an isosceles triangle and that triangle as a scalene triangle. Nonetheless both share in triangularity, this is the 'kind' to which they belong, which determines what it is that they are and what the intellect abstracts. After all every isosceles triangle must be a triangle, but not every triangle must be isosceles. Similarly with dogs, knowing that something is a beagle, as opposed to a collie depends on knowing what a dog is. Thus, in the case of the dog lover, the form abstracted is caninity for it grounds the other concept pertaining to the sub-species. The species is ontologically and epistemologically more fundamental and important than the sub-species.

The objector may respond by citing a further objection that genus is more fundamental than species so why not say that it is animality as opposed to caninity that is abstracted in the case of dog, why put so much emphasis on the abstraction of that latter form? In a sense the genus is more fundamental. However, it lacks the ontological and epistemological importance of species. Ontologically, defence of this point rests ultimately rests on Aquinas' understanding of the world and its objects. It is a world consisting of many different individuals belonging to different kinds. These kinds are ontologically important, while these kinds may be grouped into genera, or subdivided into sub-species, the kind outlines a specific difference which makes object A to be a member of kind X and object B to be a member of kind Y. This kind is determined by a genus and a specific difference, such as animal and rationality in the case of humanity. All humans are animals, but the species is indicated by their specific difference, the attribute unique to their species, rationality. Epistemologically the importance of substantial form is that it specifies the object in a way that no other specification, at the level of genus or sub-species, can. To see this, consider the case of triangularity. That something is a triangle tells you how it differs from all other geometric shapes, what makes it specifically different from all other examples of the genus. But, as we saw above, it also tells you what all the sub-species have in common and determines what they are.

We have attempted to explain how a form existing in the world comes to exist in the mind and how the intellect comes to grasp a quiddity. We saw that the intellect's grasp of its proper object can take place on a number of levels: insight into what this quiddity is, my ability to know what it is, depends very much on what I already know. Sometimes I have quite a full insight into the quiddity, I am able to assign the object to a kind. At other times, because of distance or lack of knowledge such insight remains at a very general level. This insight into the grasp of a quiddity is most important, it demythologises any notions we may have about grasping quiddities.

In *De Ente et Essentia* Aquinas tells us that whatness or quiddity is¹⁰² synonym for essence, as are nature and form.¹⁰² This could suggest that Aquinas believes that the intellect's first act

¹⁰² *op. cit.* Chapter 1.2

gives us knowledge of the essence of a thing. However, our discussion of the grasp of a quiddity should lay to rest any notion that Aquinas thinks that the intellect in its first act understands the essence of things. Nevertheless, Aquinas doesn't help himself by at times appearing to say this. For example, in the third book of the *Commentary on De Anima* he writes:

It [the intellect] knows the specific nature or essence of an object by going out directly to that object.¹⁰³

And later on in the same work:

....as he [Aristotle] says, essence is what the intellect first knows; hence, just as sight is infallible with respect to its proper object, so is the intellect with respect to essence. It cannot, for instance, be mistaken when it simply knows *what* man is...¹⁰⁴ [Editor's emphasis]

On the other hand, he unequivocally states the opposite:

We do not know a great many of the properties of sensible things; and in most cases we are not able to discover fully the natures of those properties that we apprehend by sense.¹⁰⁵

...first apprehension of any object does not show us what is implicitly contained in it.¹⁰⁶

and most famously:

But our cognition is so weak, that no philosopher can ever perfectly investigate the nature of even one fly.¹⁰⁷

It does seem implausible to hold that in apprehending something we have insight into its essence or nature: there are many things we experience, but of those things' natures or essences we do not have a clue. Moreover, such an intuition seems to undermine the role of the senses and the fact that much of our knowledge of things comes from their accidental properties. We saw this above and also earlier in a text from the *Commentary on the De Anima* quoted in chapter one:

Since the essential principles of things are hidden from us we are compelled to make

¹⁰³ *In D. A.* III 8 Cognoscit enim naturam speciei sive quod quid est, directe extendo seipsum

¹⁰⁴ *ibid* III 11. Et hujus rationem assignat, quia quod quid est, est primum objectum intellectus, unde, sicut visus nunquam decipitur in proprio objecto, ita neque intellectus in cognoscendo quod quid est. Nam intellectus nunquam decipitur in cognoscendo quod quid est homo.

¹⁰⁵ *SCG* I 3. 5 Rerum enim sensibilibus plurimas proprietates ignoramus, earumque proprietatum, quas sensu apprehendimus, rationem perfecte in pluribus invenire non possumus.

¹⁰⁶ *ST* 1a q58 a4...ex hoc scilicet quod non statim in prima apprehensione alicujus primi apprehensi potest inspicere quidquid in eo virtute continetur. The Blackfriars' translation used above is not as forceful as it might be. '*Statim*' 'at once' is left untranslated, as is '*virtute*'. The basic thrust of Aquinas' point is that the first apprehension of any object does not show us immediately the powers contained in it.

¹⁰⁷ *In Symbolo apostolorum* 1 Sed cognitio nostra est adeo debilis quod nullus philosophus potuit unquam perfecte investigare naturam unius muscae.

use of accidental differences as indications of what is essential.¹⁰⁸

Similar sentiments are expressed elsewhere:

Since, according to the Philosopher, we do not know the substantial differences of things, those who make definitions sometimes use accidental differences because they indicate or afford knowledge of the essence as the proper effect affords knowledge of a cause.¹⁰⁹

It must be said that because substantial forms in themselves are unknown but become known to us by their proper accidents, substantial differences are frequently taken from accidents instead of substantial forms which become known through such accidents.¹¹⁰

Since, however, the essences of things are not known to us, and their powers reveal themselves to us through their acts, we often use the names of the faculties and powers to denote essences.¹¹¹

Given the synonymy between essence and quiddity stated in the early stages of *De Ente et Essentia* it is easy to see how St. Thomas could be misunderstood to hold the position that in its first act the intellect does indeed come to know what the essence of a thing is. The above extracts, however, show this interpretation to be incorrect, insight into essence is generally an arduous task for our intellect. Furthermore, the extracts on accidental properties and powers reinforce the emphasis we placed on them earlier. The thrust of Aquinas' argument is that we denote what is unknown to us, the essence of a thing, by what we can know of the thing: its faculties, powers and accidents. Knowledge of these processes is a necessary element in obtaining knowledge of a thing's essence. It is by this information, abstracted from what our senses tell us that, in some instances, we may come to acquire knowledge of an object's essence.

This kind of knowledge is specialised, it is the stuff of which *scientia* consists. This is what Aquinas means in *ST* 1a q84 a8c when he says:

The philosopher seeks only to know the nature of stone or horse in order to have an

¹⁰⁸ *In D.A.* I.1 Sed quia principia essentialia rerum sunt nobis ignota, ideo oportet quod utamur differentiis accidentalibus in designatione essentialium.

¹⁰⁹ *DV* q10 a1 ad6 Dicendum, quod secundum Philosophum in VIII *Metaph.*, quia substantiales rerum differentiae sunt nobis ignotae, loco earum interdum definiuntur accidentalibus utuntur, secundum quod ipsa designant vel notificant essentiam, ut proprii effectus notificant causam.

¹¹⁰ *DSC* q11 ad3 Formae substantiales per seipsas sunt ignotae; sed innotescunt nobis per accidentia propria. Frequenter enim differentiae substantiales ab accidentibus sumuntur, loco formarum substantialium quae per huiusmodi accidentia innotescunt.

¹¹¹ *DV* q10 a1 Quia vero rerum essentiae sunt nobis ignotae, virtutes autem earum innotescunt nobis per actus, utimur frequentur nominibus virtutum vel potentiarum ad essentias significandas.

explanation of things which are seen with the senses.¹¹²

It is the philosopher's task, or as we would call him or her today the scientist, to discover such essences, to look for the cause, or as St. Thomas puts it, to provide an explanation of the things we see with the senses.¹¹³

Scientia, complete knowledge of a thing's essence, is a deeper insight into the same quiddity with which the process of knowledge begins. Norman Kretzmann has rightly called the latter alpha and the former omega cognition.¹¹⁴ What we have seen here regarding the complete knowledge of a thing's essence is further proof of the point which we made against MacDonald in the last chapter: we can have *scientia* of the natural kinds which make up our world. In chapter one, we saw Aquinas discuss, in his *Commentary on Boethius' De Trinitate*,¹¹⁵ the division of the sciences into metaphysics, mathematics and natural philosophy; each being different in method and object.¹¹⁶ That St. Thomas has natural philosophy in mind is seen in the word he uses in *ST* 1a q84 a8c to describe the individual who seeks to know the nature of a stone or horse, he describes him as a *naturalis*. Such insight, on the rare occasions when it occurs, is the remit of the specialist who seeks *scientia*, it is certainly not what is grasped in the first act of the intellect. Nor need it be. At the level of perceptual knowledge we don't need the kind of insight which is indicative of omega cognition. It's more important to know that there is a dangerous river over there than to know the essential nature of water.

An important point of our consideration of the psychological component is that grasping a quiddity is not a magical intuition of essence. Nor is quiddity itself magically intuited, we grasp it through what is apparent to us, that is, by what we can sense and our grasp of it can take place on various levels. We will draw our consideration of the psychological component to a close by looking at the veracity of the first act of the intellect. Under this psychological heading we will also give a brief recap of the second act of the intellect, the intellect's grasp of truth and what it means to have an immaterial, universal and necessary knowledge of material, particular and contingent things. Unlike our treatment of the first act of the intellect, however, our treatment of the second act will not be as detailed. There are three reasons for this. First, the actual mechanics of the second act, judging what has been grasped in the first

¹¹² Et similiter naturalis non quaerit cognoscere naturam lapidis et equi, nisi ut sciat rationes eorum quae videntur secundum sensum.

¹¹³ We discuss these matters in the next chapter when we examine the formation of the principles of *scientia*.

¹¹⁴ Kretzmann 1992, page 143.

¹¹⁵ *op. cit* q5 a2c; q6 a2c. See also *In Phy.* II On the principles of natural science; *In Meta* VI 1 1

¹¹⁶ The object of metaphysics are things which do not depend on matter for their being, such as God, the angels, being and its transcendental properties and so on. Its proper method is intellectual consideration. The object of mathematics are things such as lines and numbers which are dependent on matter for their being, but not for being understood. Mathematics proceeds by the mode of learning. Natural philosophy has as its object things which depend on matter both for being and for being understood: the material objects of this world. This science proceeds by reason. Cf. *Commentary on Boethius' De Trinitate* q6 a1.

act, require less unpacking than the grasp of a quiddity. Second, with this in mind, we note that many of the relevant issues, such as composition and division, *conversio ad phantasmata* and so on, have already been discussed either in chapter one or in our discussion of McDermott. Third, of greater interest to us is the knowledge which results from the judgments which constitute the second act. In the next section of this chapter we will look closely at the perceptual knowledge which may result from the second act of the intellect.

In our sketch of the first act of the intellect given in chapter one we noted that the intellect is never mistaken in grasping a thing's quiddity. We are now in a position to clarify this statement and show that it is not as controversial as it seems. In *ST* 1a q16 a2c St. Thomas writes:

Now since a thing is true as having the form proper to its own nature, it must follow that the mind, in the act of knowing, is true as having the likeness of the thing known, which is the form of the intellect in the act of knowing. Accordingly truth is defined as conformity between intellect and thing. Hence to know that conformity is to know truth.¹¹⁷

Earlier we explained how the same form can exist intentionally in the intellect and naturally in the thing. The above extract gives another insight into the intentional and natural existence of a form: there exists a likeness between both existences of the form. This likeness is an extremely important element of Aquinas' epistemology because it grounds the veracity of the first act of the intellect. Its importance is seen in the number of times it has been mentioned in our discussion of knowledge, whether the knowledge is divine, angelic or human.

In the above extract Aquinas uses '*similitudo*' to describe this likeness. Unfortunately, this term doesn't fully express the kind of likeness which he has in mind. '*Similitudo*' basically means resemblance, in the sense that this dog resembles that other dog or the Queen's portrait resembles the Queen herself. The likeness which St. Thomas believes to exist between the intentional and natural existences of a form is much more than mere resemblance. We get a hint of his thoughts in *ST* 1a q16 a1c where, referring to Augustine's definition of truth, he says:

Truth is *complete* likeness to the source, without any unlikeness. [My emphasis]¹¹⁸

It is not a mere resemblance, but a complete or total [*summa*] likeness. Earlier in this first article of *ST* 1a q16 the full extent of this likeness is driven home in the example he uses. Discussing whether truth is only in the mind, he draws a distinction between a thing understood having an essential relation to some mind or an incidental relation. It has an incidental relation to a mind which understands it, but an essential relation to a mind if it

¹¹⁷ Cum autem omnis res sit vera secundum quod habet propriam formam suae naturae, necesse est quod intellectus, in quantum est cognoscens, sit verus in quantum habet similitudinem rei cognitae, quae est forma ejus in quantum est cognoscens. Et propter hoc per conformitatem intellectus et rei veritas definitur. Unde conformitatem cognoscere est cognoscere veritatem.

¹¹⁸ Veritas est *summa* similitudo principii, quae sine ulla dissimilitudine est.

depends on that mind for existence. The example he uses is that of a house; it has an incidental relation to our minds when we understand it, but an essential relation to the mind of the architect who designed. There is a parallel here to things in the world and their relation to our minds and the mind of God. These things have an essential relation to the mind of God because they depend on him for existence, but only an incidental relation to our minds which can know them. As part of this discussion he says that the house is 'true' if it turns out to be like the plan of the house in the architect's mind: not that it merely resembles it, but that it is an exact material copy of the idea. The same form which gives shape to his idea gives shape to the individual object. In *De Veritate* q1 a2 the word he uses to describe this likeness indicates this fuller sense much more clearly. There he does not use '*similitudo*' but '*adaequatio*'. He says:

For the nature of the true consists in conformity [*adaequatione*] of thing and intellect.¹¹⁹

We will look at the matter of truth momentarily. For the moment, '*adaequatio*.' is of greater interest. Aquinas holds that there is an adequation; one thing is adequate to, is ordered to, the other. The actual house is ordered to the architect's idea of it: it is the material existence of what existed immaterially in his mind. It is not a mere resemblance, but an identity. This *adaequatio* is the sense of likeness intended in the case of intentional and natural existences of form. The form that has been abstracted can be said to be true because it is the same form which gives shape to the individual giving shape to our idea of the individual. The conformity between the intellect and thing is based on this identity: the same form has two different manners of existence, natural and intentional. In the case of human knowledge, this conformity, this *adaequatio*, is what constitutes the truth of the first act of the intellect. This is the sense in which the first act is never mistaken.

This first act provides the necessary conditions for the quest for knowledge proper to begin, for the first act provides the answers to *an sit?* and *quid est?* However, it is an act which is pre-judgmental; it is knowledge at its most inchoate stage, to use Norman Kretzmann's term.¹²⁰ This is apparent in what Aquinas goes on to say:

Intellect can know its own conformity to the thing known, yet it does not grasp that conformity in the mere act of knowing the essence of a thing. But when the intellect judges that the thing corresponds to the form of the thing which it apprehends, then for the first time it knows and affirms truth. This it does in the act of joining and separating concepts in judgment.....¹²¹

To actually know this truth we must make a judgment. Knowledge of truth and falsity requires judgment that such and such is the case: a judgment which does not take place in the first act. For this reason while truth is characteristic of the first act of the intellect we would

¹¹⁹ Veri enim ratio consistit in adaequatione rei et intellectus.

¹²⁰ Kretzmann 1992, page 190.

¹²¹ ST 1a q16 a2c. Intellectus autem conformitatem sui ad rem intelligibilem cognoscere potest; sed tamen non apprehendit eam secundum quod cognoscit de aliquo quod quid est. Sed quando iudicat rem ita se habere sicut est forma quam de re apprehendit, tunc primo cognoscit et dicit verum. Et hoc facit componendo et dividendo.....

be wrong to say that the intellect knows or grasps the truth in its first act. Possessing the truth is not the same as grasping the truth. In *De Veritate* Aquinas offers this explanation:

According to the Philosopher, our understanding has a twofold operation. There is one by which it forms simple quiddities of things, as what man is, or what animal is. The operation of itself does not involve truth or falsity, just as phrases do not. The second operation of the understanding is that by which it joins and divides concepts by affirmation and denial. Now, in this operation we find truth and falsity, just as we do in the proposition which is its sign.¹²²

This extract from *DV* q14 a1c in which Aquinas draws a parallel to language requires clarification. His parallel states that as we do not speak of a phrase or concept as being true or false, so too with respect to the intellect's first act. Truth and falsity are normally applicable to propositions which include concepts: propositions which are formed in the intellect's second act. Generally speaking this is the case, we speak of propositions, as opposed to concepts, being true or false. Nevertheless, there is a sense in which truth is applicable to phrases and concepts. Consider this example, suppose we are walking through the park and see a dog. Our intellect forms the concept 'dog'. There is a sense in which this concept is true because it corresponds to what we are seeing. Aquinas would explain this truth in terms of the *adaequatio* which exists between the form as it exists in the intellect and as it exists in the thing. This is the sense in which the intellect in its first act possesses the truth. However, as we have seen Aquinas say,¹²³ to actually *know* and *affirm* that truth, a subsequent act of the intellect is required. That is, a proposition must be formed. So, in the case of our walk in the park, on the basis of grasping the quiddity of what we see, the proposition 'there is a dog' is formed. The concept is used in a proposition. This proposition can be either true or false. Only when the intellect has judged that what it has formed corresponds to the object in the world can the intellect be said to be in possession of the truth. Therefore, while the first act contains this truth, we do not know it, the conformity must be judged in order to know the truth. This is the sense in which truth and falsity are applicable to propositions made on the basis of the quiddities grasped: propositions which constitute the second act of the intellect and which, if judged true, are knowledge.

In chapter one we looked in some detail at the second act of the intellect and the intellect's grasp of truth which may result, the grasp of truth which is the intellect's goal. We saw how the human intellect differs from the intellects of God and the angels in that it does not immediately grasp the truth in its first act. Aquinas says:

In forming the quiddities of things, the intellect merely has a likeness of a thing existing outside the soul, as a sense has a likeness when it receives the species of a sensible thing. But when the intellect begins to judge about the thing it has

¹²² *DV* q14 a1c Intellectus enim nostri, secundum Philosophum in lib. *De Anima* duplex est operatio. Una qua format simplices rerum quidditates; ut quid est homo vel quid est animal: in qua quidem operatione non invenitur verum per se nec falsum, sicut nec in vocibus incomplexis. Alia operatio intellectus est secundum quam componit et dividit, affirmando et negando: et in hac iam invenitur verum et falsum, sicut in voce complexa, quae est eius signum.

¹²³ See *ST* 1a q16 a2c above.

apprehended, then its judgment is something proper to itself- not something found outside in the thing. And the judgment is said to be true when it conforms to the external reality. Moreover, the intellect judges about the thing it has apprehended at the moment when it says that something is or is not.¹²⁴

To know the truth the human intellect must judge the conformity between the quiddity it has grasped and the thing as it exists in reality. “To know this conformity is to know truth.”¹²⁵ This is done when it forms propositions: whether affirmative or negative.¹²⁶ *DV* q1 a3c gives an illustration of what he has in mind: “the intellect judges about the thing it has apprehended at the moment when it says that something is or is not.” This is how the human intellect grasps the truth. The intellect must judge the correspondence between what it has formed and the object, in order to know the truth. Truth, as Owens puts it, is measured by existence.¹²⁷ Such comparison to existence also indicates falsity: that is when we take something to be the case when it isn’t.¹²⁸ In a passing comment in the *Summa Contra Gentiles* Aquinas gives an indication of what he considers to be the source of such error. Presumption, he writes, is mother of all error.¹²⁹ When we draw conclusions from our analysis we will see how perceptive that comment is.

In chapter two we noted that MacDonald placed emphasis on, what he labelled the intellect’s self reflexive ability, its capacity to judge the conformity between what it has formed and reality. This motivated MacDonald to label Aquinas an internalist. Undoubtedly this judgment of conformity is an important element in the human intellect’s quest for knowledge and, moreover, it does indicate an internalist element in Aquinas’ account of our acquisition of knowledge. Nevertheless, it does not make it internalist. The importance of things in the world in answering the question *an sit?* and the subsequent importance of their objective existence in checking the veracity of what the intellect has formed underline the heavily externalist nature of Aquinas’ epistemology, to say nothing of the role of psychological processes involved, processes to which we have no direct access. If we want to use such labels, Aquinas is an externalist with just a touch of internalism.

Applying such labels at this stage is perhaps getting beyond ourselves. There is still much to be done, not least a consideration of how we can have an immaterial, universal and necessary knowledge of material, individual and contingent things.

¹²⁴ *DV* q1 a3c Intellectus autem formans quidditates, non habet nisi similitudinem rei existentis extra animam, sicut et sensus in quantum accipit speciem rei sensibilis; sed quando incipit iudicare de re apprehensa, tunc ipsum iudicium intellectus est quoddam proprium ei, quod non invenitur extra in re. Sed quando adaequatur ei quod est extra in re, dicitur iudicium verum esse. Tunc autem iudicat intellectus de re apprehensa quando dicit quod aliquid est vel non est.

¹²⁵ *ST* 1a q16 a2c Unde conformitatem cognoscere est cognoscere veritatem.

¹²⁶ *ibid.*

¹²⁷ Owens 1992b, page 206.

¹²⁸ Obviously we can be mistaken. We can think that a judgment is true when, in fact, it isn’t. We will look at such error in the next section.

¹²⁹ *SCG* I .5.

Earlier we described how, when walking through the park, the intellect grasped the quiddity 'dog'. On the basis of this, the intellect could form a judgment about dogs in general, such as 'dogs are four legged' or 'dogs are not scaly creatures,' the former being an instance of composition and the latter being an instance of division. The intellect could also form a judgment about the particular dog that the individual has come across 'this dog is white', 'this dog is running around.' This kind of judgment involves *conversio ad phantasmata*. We have outlined what Aquinas means by this in other places; in chapter one when we discussed what Aquinas meant by this phrase and in this chapter when we challenged McDermott's account of *conversio*. All we need do here is recall that *conversio* is a natural process of the human intellect, it is something which it does spontaneously. It is a necessity imposed by two factors: the particular is a material thing, matter is not knowable, therefore what is immaterial, the form, must be abstracted from the material individual. This universal form, as we have seen, is what is known directly. Secondly, due to the dimness of our intellectual power, unlike the angel's knowledge of universals, our knowledge of universals does not also include knowledge of individuals' particularity.¹³⁰ To obtain knowledge of the particular the intellect must turn to the faculty of the human soul by which it deals with particular and corporeal things; the senses.¹³¹ In other words, to make a judgment about a particular thing, it must turn to the sense images. The veracity of such judgments, whether about dogs in general or a particular dog is tested by reference to reality, the self-reflexive act we discussed above. If the judgment is true, the intellect can be said to have knowledge of material things, a knowledge which is immaterial, universal and necessary of an individual, material and contingent thing.¹³² How is it that our knowledge has three properties directly opposite to the properties the thing has in its real existence?

The immateriality clearly derives from the nature of the intellect itself. Unlike the senses, which use bodily organs, the intellect is a power of the soul which is itself immaterial.¹³³ Thus, the only way that the intellect can know is immaterially; it has to abstract the quiddity of an object from its material individuating conditions. The universal and necessary aspects of his account also derive from the activity of the intellect. The universal aspect is, of course, the species or genus to which the individual belongs and which the individual exemplifies; it is universal because the intellect, as we have seen, abstracts it from the material individuating

¹³⁰ ST 1a q57 a2c..... so too the angels, through representational likenesses imparted to them by God, know things, not only in terms of their natures in general but also in terms of their individual particularity; knowing them as manifold representations of that one simple divine essence. [Ita angeli per species a Deo inditas cognoscunt res non solum quantum ad naturam universalem, sed etiam secundum earum singularitatem, in quantum sunt quaedam repraesentationes multiplicatae illius unice et simplicis essentiae.]

¹³¹ *ibid.* As man knows all classes of things by faculties that differ from each other-knowing by his intellect universals and things free from matter, and by sensation the particular and corporeal-so an angel knows both kinds of being by one and the same intellectual power. [Sicut homo cognoscit diversis viribus cognitivis omnium rerum genera; intellectu quidem universalis et immaterialis, sensu autem singularis et corporalis; ita angelus per unam intellectivam virtutem utraque cognoscit.]

¹³² ST 1a q84 a1c.

¹³³ ST 1a q75 a1.

conditions. The necessary aspect, in turn, follows from the universal. In *ST* 1a q86 a3c Aquinas writes:

Now anything contingent is such by reason of matter, since the contingent is what has the potentiality to be or not to be and potentiality pertains to matter. Necessity, on the other hand is a natural consequence of form, since the requirements of form are necessary properties.¹³⁴

This extract highlights the sense in which our intellectual knowledge of contingent things is necessary: there are certain powers and properties that the thing must have in order to be one of that kind. So despite the contingency of the thing it does entail some necessities, as he comments himself in the same article, there is nothing so contingent that it has nothing necessary in it.¹³⁵ Thus knowing that Fido is a dog entails that we know that there are certain necessary attributes that Fido must have. Despite the contingency of Fido's individual existence, a certain necessity follows from his being what he is. However, while, the universality and necessity of perceptual knowledge of material things primarily occurs on the side of the intellect; it is the thing's individual existence, what it actually is, that causes the intellect to have this knowledge which is universal and necessary. Moreover it is only by comparing what the intellect has formed with the real existence that we can be said to have knowledge.

Our analysis of this knowledge suggests that it has two fundamental components: the metaphysical component grounding the whole enterprise in indicating that something is there, the psychological process involved in discerning what the thing is. We will now use this analysis to advance an interpretation of Aquinas' account of perceptual knowledge which does not write it off as the poor cousin of one of the intellectual virtues, but allows it to stand on its own. And, moreover, an interpretation which will show that Owens' claims, which set the scene for this chapter, are not as outrageous as they seemed.

c. Perceptual knowledge

Aquinas, in a discussion of God's knowledge of future contingent makes the following, passing remark:

Hence in that condition [present and occurring] it [a contingent event] can be the object of certain and infallible knowledge, as a thing is seen to vision, as when I see Socrates sitting down.¹³⁶

While he doesn't describe it in terms of infallibility Joseph Owens expresses similar sentiments:

When you see that the traffic light ahead of you has turned green or that the road in

¹³⁴ Est autem unumquodque contingens ex parte materiae: quia contingens est quod potest esse non esse; potentia autem pertinet ad materiam. Necessitas autem consequitur rationem formae: quia ea quae consequuntur ad formam ex necessitate insunt.

¹³⁵ nihil enim est adeo contingens quin in se aliquid habeat.

¹³⁶ *ST* 1a q14 a13c. Et propter hoc, sic potest infallibiliter subdi certae cognitioni ut pote sensui visus, sicut cum video Socratem sedere

front of you is curving, your judgment about these facts is immediate. It requires nothing else to serve as proof. You see at once that those situations exist. This holds for whatever else is being directly perceived by the external senses.¹³⁷

Such judgments that Socrates is sitting or the traffic light is green are instances of perceptual knowledge. The certainty, immediacy and infallibility of such judgments rest on the metaphysical and psychological components which we have outlined. We will look at these components shortly. First we note two important corollaries of Aquinas' description of knowledge that Socrates is sitting. *Contra* Ross, there is no suggestion that such perceptual knowledge is an instance of *credere*. In the above quote Aquinas does not describe this judgment, this example of perceptual knowledge, in the way we have seen him describe *credere*.¹³⁸ Rather perceptual knowledge is described quite clearly as certain and infallible knowledge. Unlike *credere*, the judgment that Socrates is sitting involves immediate assent. This is alluded to by Owens when he talks of nothing more being demanded as proof: our assent is immediate. Nor, despite the description of such knowledge being certain and infallible, is there any mention of *scientia*. Contrary to Ross and MacDonald who want to describe Aquinas' theory of perceptual knowledge in terms of *credere* and *scientia*, Aquinas offers no such interpretation.

Aquinas' optimism regarding the certainty and infallibility of perceptual knowledge can be easily explained with reference to the two components which we have considered. These components provide the core justification for claiming that knowledge such as 'Socrates is sitting' is certain and infallible. Without these components such knowledge would not be possible: they are necessary for knowledge. The metaphysical component tells us that there is something there. If there were nothing there, there would be no change in the senses. As the external thing moves the senses from potency to act, the conditions exist for the process of knowledge to begin as the intellect engages in its first act, the grasp of a quiddity. As we have seen, this act includes the intellect's grasp of being external to it. In this particular case, a grasp of being which is the existence of Socrates. If he weren't there, there could be no grasp of being and the process of knowledge would not begin. This is the necessity of the metaphysical component. The psychological component constitutes the search for what it is that is there. We discussed at length how this takes place. In this particular case the quiddity grasped from the abstraction of the sense images is 'man'. Without this grasp of the quiddity knowledge cannot be attained. On the basis of the first act, certain judgments can be made. One such judgment, involving *conversio ad phantasmata*, is that Socrates is sitting. Clearly for this judgment to count as knowledge the intellect must judge the conformity between what it has formed and reality. Knowing this conformity is knowing the truth,¹³⁹ described by Aquinas as the certain and infallible knowledge that Socrates is sitting. For reasons which will become apparent we will label this the paradigm case.

¹³⁷ Owens 1992b, page 177.

¹³⁸ Cf *ST* 2a2ae q2 a1c cited above.

¹³⁹ *ST* 1a q16 a2c Unde conformitatem cognoscere est cognoscere veritatem.

The central role of metaphysical and psychological components which constitute the intellectual acts leading to the grasp of truth in the paradigm case are readily apparent. These components also ground the boldness of Father Owens' remarks that opened this chapter. It is because of these components that Owens could claim that every immediate judgment is both true and certain, involving absolute assent and leaving the knower in a state of unconditional and intellectually justified certitude.¹⁴⁰ Nevertheless, some clarification of his remarks is still demanded. We will do this shortly.

The above description of perceptual knowledge notwithstanding, matters are not as simple and straight forward as they appear. This has been alluded to above by certain qualifications that have been made. We have spoken about the *core* justification provided by, and the *central* role of both components. There are two reasons for this. First, the justification is described as 'core' because other non-core factors are required for such certain and infallible perceptual knowledge. These other factors are the distance of the knower from thing known and two factors Alvin Plantinga highlighted in his description of warrant: the proper functioning of our faculties, and the environment in which the judgment is made. That Socrates is sitting has the certainty and infallibility of $2+2=4$ because it is a judgment made by a properly functioning intellect and sensory faculties in the proper environment about something close by which is presently occurring. Second, as we will see, while metaphysical and psychological components underlie every judgment about perception, in some instances, despite a judgment being made by a properly functioning intellect in the correct environment about something close at hand, it can be mistaken. Moreover, as well as the risk of being mistaken, in many instances, judgments which are broadly labelled perceptual knowledge, are neither certain nor infallible. Only in certain instances are such judgments certain and infallible and thus properly called perceptual knowledge.

Consequently many judgments do not involve firm assent, in fact, in some cases, firm assent is not possible. Thus we are using 'Perceptual knowledge' as a broad umbrella term to cover the many different kinds of judgments which we make everyday about the world around us. This myriad of judgments about everyday matters constitutes a complex entity. After we have outlined the distance, proper functioning and environmental factors we will look at various examples of judgments which show the complexity of Aquinas' account of what we have broadly labelled perceptual knowledge, we will see how error occurs in such judgments and, most importantly, clarify the main features of perceptual knowledge.

The importance of proper function is that proper function legislates for counter examples such as those suggested by the possibility of hallucination. In the analysis which follows we will presume that the intellect and other faculties are functioning properly. Introducing the factors of distance and environment into our account of perceptual knowledge introduces an element of vagueness:¹⁴¹ just how close to an object must we be? what do we mean by 'the proper environment'? This vagueness is something that we will have to learn to live with. It

¹⁴⁰ Owens 1985, page 276.

¹⁴¹ This is a point Alvin Plantinga acknowledges too. Plantinga 1993b, page 11.

is not possible to quantify how close to an object we must be. In an important respect this depends on particular sense faculties used. In the case of touch and taste there must be immediate contact between the sense organ and the object. However, in the case of sight, immediate contact is undesirable: we cannot see something which is touching the eye. In the case of sight there has to be a medium, some distance, between the faculty and the object. Aquinas discusses this in *ST* 1a q78 a3c. In this article he notes that like sight, the senses of smell and hearing also require a medium in order to operate.¹⁴²

The motivation for introducing this criterion of distance is that experience shows that, in the case of visual, aural and olfactory perception, we are more likely to be mistaken when making a judgment about a thing distant from us. Aquinas alludes to this in *The Commentary on the Metaphysics* where he writes:

...it is evident that the farther an agent's power is extended when it acts, the more imperfect is its effect....Hence the judgment of a sense is truer about sensible colours in things close at hand than it is about things far away.¹⁴³

For simplicity's sake we have limited our discussion to visual perception. Thus in the case of visual perception the size of the object will also be an important factor in determining the distance criterion.¹⁴⁴ As in any instance of perceptual knowledge, when we form judgments about objects at a distance the same metaphysical and psychological processes are involved. However, given that our sensory powers are extended, to use St. Thomas' phrase, the judgments which we make on the basis of such components are more likely to be mistaken. So we form the judgment that the tower on the hill a mile away is round, whereas, if we were close to it we would make the correct judgment that it is square.

The motivation for introducing the environmental factor is basically the same as Plantinga's which we sketched in chapter two. Our visual faculty is designed to function properly in a white light environment. Clearly from Aquinas' perspective God is the designer. In other environments, mistaken judgments are more likely to be made: in red light white things are seen as red, in poor light and darkness many of the judgments we can ordinarily make cannot be made. Nonetheless, in such environments such judgments will still involve metaphysical and psychological components. This last point is most important and reinforces the central role of the metaphysical and psychological components. Every judgment involves these components. It may lack the certainty and infallibility that characterises the knowledge that Socrates is sitting because it is made about something at a great distance and/or in the

¹⁴² According to him the senses of touch and taste involve a physical change in the organ itself: the hand gets hot when touches something warm. The senses of smell or hearing are only physically affected *per accidens*: the noise or smell impinge on the sense organ. The sense of sight, on the other hand, is not affected physically at all: the eye does not become the red it sees.

¹⁴³ *op. cit.* IV 14 Constat enim quod virtus agentis quanto plus in remotis porrigitur in agendo, tanto deficientior eius invenitur effectus.....Et propter hoc verius est iudicium sensus de coloribus sensibilibus in propinquo quam in remoto.

¹⁴⁴ Similarly the loudness of a noise or the smelliness of the object's odour would be important factors in the case of hearing and smell.

wrong kind of environment but it still has these two components. This is apparent in the examples which follow.

Suppose that we are not next to Socrates when he sits down, but actually 500 yards away. As in the paradigm case the same metaphysical and psychological components are involved. On the basis of these components we could form the judgment that there is someone sitting down over there. This judgment is simply a more general version of the judgment which constitutes the paradigm case. It judges that an individual man is sitting down, as opposed *the* particular individual whom we call Socrates. Alternatively, while we can't be sure that it is Socrates, we could still form the judgment that Socrates is sitting down. This alternative judgment, like the previous, more general version of the paradigm case is grounded in the same metaphysical and psychological components, but the second judgment goes beyond the evidence that is available. We are making a judgment which we are not entitled to make and indeed we may be mistaken. In fact, we are, it is Plato who is sitting down. This is how error occurs. As Kretzmann pointed out such mistakes arise when we misuse our flawless equipment and overestimate our grasp of the evidence.¹⁴⁵ This is the sense in which Aquinas, in the *Summa Contra Gentiles*, called presumption the mother of error. Aquinas discusses presumption, as part of his treatment of courage and magnanimity, in *ST 2a2ae q130*. In this discussion presumption is characterised as a vice opposed to magnanimity. He says:

It is, however, generally the case in all natural things that each action is proportioned to the power of the agent involved, nor does any agent in nature strive to do what is beyond its ability. It is therefore perverse and sinful, being as it were against the natural order, for anyone to take it upon himself to tackle what is above his powers. This is the very idea of presumption, as the word itself indicates. Thus it is obvious that presumption is a sin.¹⁴⁶

While we would want to leave aside the overtones of theological culpability that colour this characterisation of presumption, his description of the vice is interesting. Presumption occurs when one exceeds one's powers, when the individual attempts to do what is beyond his or her ability. The human intellectual and sensory powers are limited. When we go beyond the evidence available to us and presume to know something that, strictly speaking we can't know because of this limited nature of our sensory and intellectual faculties, then we are epistemically culpable. This epistemic culpability, this presumption, is the source of error, or as St. Thomas puts it, the mother of error. The equipment is indeed flawless, the quiddity abstracted is 'man', but the judgment we make on the basis of this is presumptive, it exceeds the evidence available to us. We will return to the implications of this in a

¹⁴⁵ Kretzmann 1992, page 171.

¹⁴⁶ *ST 2a2ae q130 a1c* Hoc autem communiter in omnibus rebus naturalibus invenitur, quod quaelibet actio commensuratur virtuti agentis, nec aliquod agens naturale nititur ad agendum id quod excedit suam facultatem. Et ideo vitiosum est et peccatum quasi contra ordinem naturalem existens, quod aliquis assumat ad agendum ea quae praeferuntur suae virtuti. Quod pertinet ad rationem praesumptionis: sicut et ipsum nomen manifestat. Unde manifestum est quod praesumptio est peccatum.

moment. Firstly we want to look at another example of presuming we have perceptual knowledge when, in fact, the judgment is mistaken. The example is Owens'.¹⁴⁷ Suppose someone mistakes salt for sugar and fills the sugar bowl with salt. Here again, we have the metaphysical and psychological components grounding the judgment. On the basis of these judgments the individual mistakenly judges that the white stuff is sugar. The interesting point of this example is that it shows that despite there being no problem with distance or environment the judgment is mistaken.

Three characteristics regarding the judgments which we have broadly labelled perceptual knowledge can be drawn from the above examples. First, and most importantly, there is the core role of the metaphysical and psychological components which underpin the judgments. In each example the role of these components is reinforced to the point of repetition. Such repetition serves to illustrate that no matter whether the judgment is certain and infallible, correct or mistaken, these components are an essential feature. These components constitute an infallible core on which judgments are made. This infallible core is closely connected to Aquinas' firm belief in the veracity of the first act of the intellect. Mistakes, as we saw, occur when our judgments go beyond the evidence that this infallible core presents to the intellect.

In the above example we judged that it was Socrates sitting down, when in fact it was Plato. This error could have been avoided in two ways. One way we have already seen is to avoid going beyond the evidence presented and instead merely to form the judgment that someone is sitting down. Another option would have been to judge that it is possible that it is Socrates who is sitting down, but it may or may not be him, we cannot be certain. This is an important point. Sometimes the judgments which we have broadly called perceptual knowledge are actually instances of *opinio*. In *ST 2a2ae q2 a1c* Aquinas says that *opinio* occurs when the intellect cannot give firm assent for fear that the opposite of what it accepts is the case. Similar sentiments are expressed in *DV q14 a1c*.¹⁴⁸ This is the sense in which some judgments are not firm assents. They have the infallible core of the paradigm case, but because of factors such as distance, an uncertainty is introduced which means that firm assent cannot be given. Hence such judgments are not knowledge but what we would term today 'belief'. If circumstances change, for example, we move closer to the bench, it may be possible to give firm assent. In these new circumstances we can claim to have knowledge as opposed to belief. This is the second characteristic of such judgments: not all judgments match the certainty and infallibility of the paradigm. The assent we give to them comes in degrees. Some will be instances of firm assent, constituting certain and infallible knowledge while others, lacking such firm assent, are merely instances of *opinio*. Alvin Plantinga has a similar description in his account of perceptual knowledge:

The sensible route, therefore, is to continue to take it for granted that many of our perceptual judgments do indeed have warrant, and warrant that ranges all the way

¹⁴⁷ Owens 1992b, page 272.

¹⁴⁸ *op. cit.* Similiter nec opinans, cum non firmetur eius acceptio circa alteram partem.

from the minimum to near the maximum degree. I perceive a horse at 50 yards through fairly heavy fog: I form the belief that what I see is a horse; my belief may have at best a moderate degree of warrant. The horse comes trotting up so that I get a good clear look at him from 8 feet away: my belief that it is a horse I see may then have a great deal more warrant, no doubt enough for knowledge of that proposition.¹⁴⁹

Warrant ranging from the minimum to the maximum degree reinforces an aspect of Plantinga's account of knowledge outlined earlier. He suggested that with respect to knowledge core examples can be cited and around this paradigmatic core stand other examples in varying degrees of closeness to the paradigm. Our second characteristic indicates a similar structure regarding the judgments of perceptual knowledge. Distance and environment determine the level of assent and therefore whether a given judgment is actually an instance of knowledge or a matter of *opinio*? Some judgments will have the certainty and infallibility of the paradigm, some will indeed be instances of knowledge, others will not.

Distance and environment did not play any role in the error which occurred in the salt and sugar example. This example highlights the final characteristic of judgments of perceptual knowledge: ^{claims} they are defeasible. In the case of the salt and sugar evidence provided by the sense of taste leads to a revision of what we had taken to be the case. The sense of sight did not produce sufficient evidence to make the judgment which we made, going beyond the available evidence led to error. On the evidence of taste we are now in a position to make a more accurate judgment.¹⁵⁰ While some judgments will be certain and infallible, in many instances the judgments will be open to revision in light of new evidence provided by the senses. This defeasibility is what distinguishes perceptual knowledge from the intellectual virtues of understanding and *scientia*.

We are now in a position to clarify Owens' remarks that set the scene for this discussion. Clearly, Owens' assertions pertain to instances of the paradigm: that I know Socrates is sitting down because I am standing next to him, that I know I am typing into the computer because that is what I am doing. These judgments are true and certain. The various elements of metaphysical and psychological components are the reason for this confidence and boldness. There is no serious possibility that the situation could be otherwise from what I have judged it to be. However, in many other instances, when we make judgments there are serious possibilities that things could be otherwise. Environment, distance and misuse of our equipment introduce restrictions on the judgments we make. Sometimes we wisely heed these restrictions. Often we do not and we ignore the possibility that things could be otherwise. Clearly, in these instances the attributes of the paradigm case are not applicable and we do not have knowledge.

¹⁴⁹ Plantinga 1993b, page 90.

¹⁵⁰ While, for simplicity's sake we have focussed on visual perceptual knowledge, this example shows a feature of our perceptual knowledge which we mentioned in footnote number four of this chapter: often the judgments which constitute perceptual knowledge result from the evidence of several different senses.

As this chapter draws to a close some outstanding issues present themselves. How can we reconcile the defeasibility of perceptual knowledge^{claims} with the claim that some instances of perceptual knowledge are certain and infallible? Where does normativity fit into our account? Is there any way this account of perceptual knowledge can account for Goldman's Henry example?

In the strict sense something cannot be certain and infallible, yet at the same time be defeasible. However, with respect to the judgments which we form as we go about our everyday business in the world there is a sense in which defeasibility can be reconciled with certainty and infallibility. This reconciliation rests on the way we normally make judgments about material objects. *Pace* Descartes' dream argument, my judgment that there is a computer in front of me, into which I am typing this sentence, constitutes certain and infallible knowledge. It is true that there is a computer in front of me. Clearly this kind of judgment is indefeasible. However, in most instances I make such judgments without ever considering if they are certain, infallible and indefeasible. As I form judgments about the world, I don't usually pause to reflect on their possession of these qualities. It is only in light of analytic reflection that a particular judgment may be shown to have these qualities. Similarly, I make other judgments which I presume to be true, the salt and sugar case, for example. However, these judgments later turn out to be incorrect. At the time I made the initial, incorrect judgment about the salt and sugar, I accepted it in the same way that I accepted that there is a computer in front of me. I had no reason to doubt it, it seemed a reasonable judgment to make. Later evidence showed it to be incorrect and a new judgment was formed. The defeasibility of this judgment shows that it was not actually certain or infallible. The point is, however, that in my everyday dealings with the world most of my judgments are accepted as true until shown not to be. In assenting to these judgments, excluding instances of *opinio*, we make no distinction between those judgments which are true and so may be certain and infallible and those which we take to be true, but aren't. All are presumed to be true, all are assented to in the same way. Some indeed will be true and be certain and infallible, but a few will not, a few will be incorrect. Of course, we could carefully scrutinise every aspect of a situation before we make a judgment about it. In this way we could ensure that most of our judgments will be certain and infallible. The kind of scrutiny involved here can be shown by considering someone's response to the question: "Is your judgment that there is sugar in the bowl certain and infallible?" The individual would be unlikely to answer affirmatively until she had checked all the evidence, including the evidence of taste. Only then would she claim to have certain and infallible knowledge. However, given the number of judgments we have to make and the effort this kind of scrutiny would involve, it is completely impractical. Thus we tend to make judgments when we are not in full possession of all the evidence and this introduces the spectre of defeasibility into perceptual knowledge. This is the price to be paid for being able to make

the optimum number of judgments with the least effort.¹⁵¹ Some judgments will indeed be certain and infallible, some will not. That some are and some aren't is not something that we generally consider when making judgments. This is how defeasibility can co-exist with certainty and infallibility.

Throughout this analysis we have generally tried to refrain from labelling Aquinas' account of perceptual knowledge in the jargon of contemporary epistemology. At times we have failed to resist that temptation. We have seen that there are elements of foundationalism and internalism in the account and most notably towards the end of our analysis of the psychological component we did label his account externalist. As we now examine the issue of normativity the externalist credentials of his theory will become most apparent.

The account of the human intellect's knowledge of material reality which St. Thomas gives in *ST* 1a q84ff is heavily descriptive. The very title of the question "*How the soul, while joined to the body, knows material things*" [*quae sunt infra ipsam.*]¹⁵² is indicative of the descriptive tenor of his account. He is interested in the processes which cause knowledge. Our analysis of the two components, particularly the important relationship between the intellect and senses which St. Thomas discusses in the latter part of *ST* 1a q84, ought to drive home this descriptive emphasis. It is an emphasis continued throughout *ST* 1a q85. This emphasis parallels the emphasis placed on the descriptive in contemporary externalist theories of knowledge. Within these externalist theories, the descriptive is constitutive of the normative. In chapter two we saw Goldman and Plantinga make this point; their accounts reiterating Hilary Kornblith's neat description of the normative dimension of the descriptive: the way we arrive at our beliefs is the way we ought to arrive at our beliefs. So for Goldman we saw that a belief's justificational status depends on the reliability of processes that cause it. In turn Plantinga writes:

Well then, what *does* make it the case that being appeared to greenly in this way provides me with evidence for the proposition that I am seeing something green? How does it happen that this belief gets warrant for me under those circumstances? The answer is clear: this sort of belief formation under that sort of circumstance is dictated by our design plan. When our perceptual faculties function properly, when they function in accordance with our design plan, we form *that* sort of belief in response to *that* way of being appeared to. Given an appropriate epistemic environment and given that the module of the design plan governing perception is successfully aimed at truth, such beliefs will have warrant; when held with

¹⁵¹ Others have made similar proposals: Cf. Plantinga 1993b page 38ff. John Pollock in *Contemporary Theories of Knowledge* (Pollock 1986) page 161 writes "Intellection is the process whereby we indulge in explicit reasoning and form conclusions on that basis. But intellection is slow and consumes large amounts of our limited computational capacity. To get around this we also have a number of quick and dirty systems that allow us to form conclusions or respond to environmental input quickly in cases in which we do not have time to deliberate. These systems are quick but dirty in the sense that they sometimes make mistakes in ways that can only be corrected through explicit reasoning."

¹⁵² Quomodo anima cunjuncta intelligat corporalia, quae sunt infra ipsam.

sufficient firmness, they constitute knowledge. [His emphasis]¹⁵³

Plantinga's basic argument is that we form the beliefs that we do, and these beliefs acquire the justificational status that they do, because of the way our faculties are designed to work in their proper environment. Of this kind of normativity he writes:

The sort of normativity involved is not that of duty and obligation; it is normativity nonetheless, and there is an appropriate use of the term 'ought' to go with it. This is the use in which we say, of a damaged knee, or a diseased pancreas, or a worn brake shoe, that it no longer functions as it ought to. This is the use in which we say that a human heart ought to beat between forty and two-hundred times per minute, and that our car choke ought to open (and the engine throttle back to 750 RPM) when it warms up.¹⁵⁴

This explanation of normativity could be applied exactly to Aquinas' account of perceptual knowledge. There is no evidence in the pertinent passages of the *Prima Pars* that Aquinas has a deontic conception of epistemic normativity.¹⁵⁵ Nowhere does he say what ought to be done in order to attain perceptual knowledge. Rather, it is a heavily descriptive account, focussing on the processes involved. We have analysed these processes in terms of answering the two questions *an sit?* and *quid est?* Within the processes that constitute the metaphysical and psychological components lies the normative element of this part of his epistemology: the senses doing what they ought to do in their proper environment; the agent intellect doing what it ought to do in providing the conditions for the passive intellect to grasp the quiddity of what is seen and make judgments on the evidence available.

Like the heart, when the intellect functions properly it is doing what it ought to do. The normative is implicit in the descriptive. What we do in making judgments is what we ought to do. Even when, due to presumption or the environment, we make mistakes, at its core the well-functioning intellect is still doing what it ought to do. In these instances the limited human intellectual power is merely being over extended in the same way that, while a clutch is doing what it ought to do, we can still burn it out.

Contra MacDonald, Aquinas' account of perceptual knowledge is overwhelmingly externalist, concurring with what we have seen of contemporary externalist, descriptive epistemologies. As in Goldman's account where the individual need not have cognitive accessibility to the reliable belief forming processes which determine justification, so with respect to the psychological component, which we have shown to have a central role in

¹⁵³ Plantinga 1993b, page 99.

¹⁵⁴ *ibid* page 45.

¹⁵⁵ Recall that in chapter two we noted that internalist accounts of justification devote much attention to normative questions such as 'what makes a proposition evident,' 'what is an epistemic norm.' Fulfillment of the norms allows one to classify some propositions as evident and on this basis the justification of other propositions could be inferred. This is what we mean by a deontic conception of epistemic normativity: justification is a matter of epistemic duty fulfillment. This position is contrasted with that of externalism which sees normativity, not as a matter of epistemic duty fulfillment, but as implicit in the descriptive.

Aquinas' account of perceptual knowledge, the individual does not have cognitive accessibility to the processes involved in this component. For example, we are not aware of the activity of the agent intellect. The importance of the metaphysical component, being external to the knower grounding the whole enterprise, further reinforces the externalism of Aquinas' account. Our analysis of perceptual knowledge shows that the internalist, foundationalist interpretations are "untenable"¹⁵⁶ and "irremediably inaccurate."¹⁵⁷ Nevertheless, a strict pigeon-holing of his epistemology is not possible; we have seen that there are internalist and foundationalist overtones to his account of perceptual knowledge.

Equally the certain and infallible judgments which are strictly speaking perceptual knowledge are just one example of the knowledge of which humans are capable. Humans are capable of possessing other examples of knowledge such as wisdom and *scientia*. This too prevents a strict pigeon-holing, for example, when we come to look at *scientia*, we will see that it is much more foundational in its structure and that the normativity pertinent to *scientia* is much more deontological. Given the many parallels that have been drawn in this chapter and the last to the epistemology of Alvin Plantinga some might be tempted, despite the foundationalist character of Plantinga's theory, to pigeon hole Aquinas' account as a mediaeval version of Plantinga's account of warrant. A more accurate description would be to say that Plantinga's account, its foundationalism notwithstanding, is in some broad respects a contemporary version of Aquinas'. Stump, as we noted, has also noticed the resemblance.

So we conclude by returning to the example which opened this chapter, the story of hapless Henry going for a drive through fake barn country.¹⁵⁸ There we suggested that a Thomistic account of epistemology, that espoused by Owens, could not cope with this Gettier style example. Can we now change our opinion? No, taking the theory on its own, it can't really avoid the conclusion Goldman reaches regarding Henry's luck. Like most epistemologies Aquinas' account of perceptual knowledge has difficulty dealing with Gettier style counter-examples. But that is not the end of the world, nor is it the end of Aquinas' account of perceptual knowledge. Two options present themselves to us. First, we can take advantage of a development in contemporary epistemology. Second, if we wish to be purist and not use modern developments we can at least show that the situation is not as bad as it appears.

¹⁵⁶ MacDonald 1993, page 186.

¹⁵⁷ Stump 1992, page 133.

¹⁵⁸ In his account of warrant Plantinga puts this Gettier type example down to problems in the local cognitive environment. This is surely implausible. It would mean that technically we are never mistaken, it is simply the fault of the wrong kind of environment. Viewing a white object in red light and thinking that it is red can be blamed on the environment, the medium of the perception. But being deceived by a fake barn can hardly be explained away in the same manner. In this case there is no problem with the cognitive environment. The light is good, the senses are working as they ought. The fact that there may be a fake barn and that Henry may make a judgment which is just a lucky guess or indeed be mistaken has to do with Henry and the judgment he makes. Cf. Plantinga 1993b, page 31ff.

The modern development of which we can take advantage is admittedly controversial: the theory of relevant alternatives.¹⁵⁹ Alas, there is no mediaeval version of such a concept in Aquinas' account of perceptual knowledge. But that doesn't mean to say that it can't be used. No judgment is made in isolation. We can see the importance of this in what follows. In order for Henry to claim that he sees a barn, he must be apprised of the likelihood of the relevant alternative that, because he is in fake barn country, he may actually be looking at a fake barn. So, in these circumstances, he can only claim to know that it is a barn when he actually knows that he is not looking at a barn facade.

From what we have seen in our analysis of perceptual knowledge we can describe Henry's situation as follows. From his sensory experience, Henry knows that he is seeing something. This is the metaphysical component. From his sensory experience the intellect grasps a quiddity. On the basis of his previous experience this quiddity is described by the term 'barn'. On the basis of this Henry forms the judgment that there is a barn over there. Two scenarios are possible, there is indeed a barn, or in fact it is a barn facade. If the first instance is the case, it seems, as Goldman said that he has just been lucky. If the second instance, Henry is plainly mistaken. If, however, he had been aware of the relevant information that he was in fake barn country, he would have been wary about making any judgments until he was in a position to do so. He would not have made the judgment that there is a barn over there. He would have waited until he was in full possession of the evidence and in a position to make a judgment and then the judgment would neither be lucky or mistaken.

Now we consider the situation regarding Henry's judgment without employing the use of relevant alternatives. Let us presume that it is a barn facade which Henry sees. Does this mean that the first act of the intellect is mistaken when the quiddity grasped is 'barn'? No, the intellect can only act on the information the senses provide and, as we have seen again and again, unlike the angelic intellect we do not know everything about an object in our first apprehension of that object. The senses provide the information that there is something there, on the basis of this information a quiddity is grasped. The senses can only be set into act by what is apparent to them. What is apparent to them is that there is a barn front over there. On this information the intellect engages in its first act. Clearly, however, there is no barn there, just a barn facade. So the subsequent judgment that there is a barn is mistaken. Henry forms a judgment which he thinks is correct. He is, of course, mistaken. He has been deceived. Sadly this is a fact of the limited nature of human intellection. If we weren't capable of being deceived every conjuror would be out of work. If it had been a real barn, his judgment would, of course, have been true; but this is just a matter of luck.

This scenario shows the defeasibility of perceptual knowledge which we have outlined: that many of our judgments are neither certain nor infallible. However, for expedience sake we don't scrutinise our judgments to separate the infallible and certain from those which are not.

¹⁵⁹ Dretske 1981, pp363-378.

We tend to treat all our judgments as true and assent as if they were. If Henry were asked if this judgment is certain and infallible he would most probably move closer to the object, or change his position before stating that it is indeed so. In this way he will discover that it is a facade and that his judgment is actually untrue or confirm his earlier lucky judgment that it is a barn.

Importantly, regardless of whether Henry knows of the relevant alternative or not, because his intellect is functioning properly there is still an infallible core to the judgment that he makes. This can be expressed in the certain and infallible judgment that there is something out there. This kind of judgment, however, doesn't tell us very much, we prefer to know more. Wanting to know more and sometimes exceeding the evidence available introduces the risk of defeasibility. That is what makes this kind of knowledge^{claim} different from the intellectual virtues, two of which we will look at in the next chapter.

4. *Scientia*

Sed contra est quod scientia est in intellectu. Si ergo intellectus non cognoscit corpora, sequitur quod nulla scientia sit de corporibus. Et sic peribit scientia naturalis, quae est corpore mobili.

Summa Theologiae 1a q84 a1.

St. Thomas, in the above extract, tells us that if the human intellect did not have knowledge of material things, it could not have *scientia* of them. As it has *scientia* of them, it follows that it must have knowledge of them. Throughout this work we have frequently made reference to *scientia*. In chapter one, when we outlined the various kinds of human knowledge, we outlined the main qualities of *scientia* that distinguish it from other kinds of human knowledge. In chapter two we noted Scott MacDonald's argument that Aquinas saw *scientia* as the paradigm of all knowledge, with perceptual knowledge as a kind of secondary *scientia*. However, in the last chapter, our analysis showed that the intellect's knowledge of material reality has its own unique features and should not be described as some kind of watered down *scientia*.

Having analysed the intellect's knowledge of material things, we now address directly the issue of *scientia*. Aquinas' treatment of *scientia* in *In P. A.* is complex: a detailed and thorough examination of which would constitute a volume on its own. This chapter does not aim to give a complete analysis of *scientia*. Rather, it aims to examine the relationship between *scientia* and perceptual knowledge by looking at the role of perceptual knowledge in the formation of *scientia*'s principles. We will begin our analysis by looking at MacDonald's

and Stump's differing descriptions of *scientia*, outlining their principal differences. Their work will serve as a catalyst for our analysis in much the same way as McDermott's did in the preceding chapter. Mindful of MacDonald's and Stump's accounts, we will then begin an examination of how the principles of *scientia* are formed. This discussion will also necessitate consideration of Aquinas' account of understanding. At the end of the analysis, we will be in a position to see the crucial role which perceptual knowledge plays in *scientia*. We will also see whether Stump or MacDonald, or perhaps neither, offered the more accurate interpretation.

a. MacDonald v. Stump (again)

In chapter two we outlined briefly the differing interpretations of Aquinas' epistemology offered by Stump and MacDonald. We will now examine and contrast their descriptions of *scientia*. We begin by noting two non-contentious remarks each makes about *scientia*, MacDonald's reminder that '*scientia*' can be used in two ways and a brief reference by Stump alluding to different kinds of *scientia*.

Scott MacDonald's point ought to be restated first. '*Scientia*' can be used in two ways. It can be used to describe, as MacDonald puts it, 'a kind of mental state or disposition, what we might call a propositional attitude', or '*scientia*' can be used to describe an organised body of knowledge, such as geometry.¹ Presumably the background to MacDonald's remark is Aquinas' admission that Aristotle uses '*scientia*' in a broad sense to refer to anything which is known with certainty and in a narrower sense in which '*scientia*' is said to deal with conclusions and is set off against understanding which deals with principles.² These conclusions, for example, the axioms of geometry, arrived at by reasoning from principles, are part of the organised body of knowledge of which MacDonald speaks. Our certain perceptual knowledge that Socrates is sitting, sketched in the last chapter, while not *scientia*, could be classed under '*scientia*' in the broad sense.

In her article "Aquinas on the Foundations of Knowing" Eleonore Stump gives a brief and lucid overview of the process of reasoning that is worth restating here as it can serve to illustrate the narrower sense of '*scientia*':

There is a process of reasoning, Aquinas says, which yields its results necessarily, and in this process the certitude of *scientia* is acquired....This process of reasoning consists in demonstrative syllogisms. Each demonstrative syllogism has two premises, and these premises must be better known and prior to the conclusion. But demonstration does not give rise to an infinite regress. There are first principles of demonstration, and these are themselves indemonstrable.³

The narrower sense of '*scientia*' refers to the process of reaching the conclusions of *scientia*

¹ MacDonald 1993, page 188 Footnote 13.

² *In P. A.* I. 7.

³ Stump 1992, page 132.

by reasoning from indemonstrable principles,⁴ and to the relationships between the different demonstrative syllogisms; as we will see, the conclusions of some syllogisms can serve as the premises of others. Thus, for example, the principles of optics are taken from geometry.⁵ The process of reasoning and the relationships of the various syllogisms constitute the organisational structure of *scientia*. As we have noted there are significant differences between Stump's and MacDonald's analyses of *scientia*. These differences apart, MacDonald would have no difficulty in agreeing with Stump's description of *scientia*'s structure, and the certainty and necessity which is indicative of it. However, before we begin to look in detail at those different interpretations further comment on the features of *scientia* must be made, not least the connection between the 'broad' and narrow senses of '*scientia*'.

Knowledge of conclusions like any instance of knowing that something is the case is a propositional attitude. In the case of *scientia* it is a propositional attitude which is characterised by certainty. Moreover, it is a habit of the person who has it. Both the broad and narrow senses of '*scientia*' are closely related and are illustrated by a description of *scientia*, already cited by us in chapter one, that Aquinas himself offers:

Apropos of this it should be noted that to know something scientifically is to know it completely, which means to apprehend its truth perfectly. For the principles of a thing's being are the same as those of its truth. Therefore the scientific knower, if he is to know perfectly, must know the cause of the thing known; hence he says, "when we think that we know the cause". But if he were to know the cause by itself, he would not yet know the effect actually-which would be to know it absolutely-but only virtually, which is the same as knowing in a qualified sense and incidentally. Consequently, one who knows scientifically in the full sense must know the application of the cause to the effect; hence he adds, "as the cause of that fact". Again, because science is the sure and certain knowledge of a thing, whereas a thing which could be otherwise cannot be known with certainty, it is further required that what is scientifically known could not be otherwise. To repeat: because science is perfect knowledge, he says, "When we think that we know the cause"; but because the knowledge through which we know scientifically in the full sense is actual, he adds, "as the cause of that fact." Finally, because it is certain knowledge, he adds,

⁴ In our previous descriptions of *scientia* the principles on which *scientia* rests have been frequently labelled 'indemonstrable'. So far we have not really discussed this term. This lacuna will be dealt with in the coming pages.

⁵ In *P. A.* I 25 discusses the relationship between what Aquinas terms the higher and lower sciences, the former being the mathematical sciences, the latter those concerned with sensible matter.

"and that the fact could not be other than it is."⁶

Scientia is certain knowledge.⁷ In one sense this is indicative of the broad sense of 'scientia', the propositional attitude that he knows that *p* with certainty, where *p* is the proposition which expresses the conclusion of the demonstrative syllogism. In the case of certain perceptual knowledge, the knower's knowledge is certain because of the factors which we outlined in the previous chapter. In the case of *scientia* however, the scientific knower knows that *p* with certainty because of the process and principles involved in the production of *scientia*; a process by which the scientific knower has 'reduced this conclusion to its principles', as Aquinas often puts it.⁸ That is to say, *p* is a proposition which makes a statement about some universal kind, for example, human beings. By means of a demonstration the scientific knower can show the connection between the conclusion *p* and its principles, principles which express the causes of the state of affairs which *p* states. This demonstration indicates the narrower sense of 'scientia', the sense in which *scientia* can be described as an organised body of knowledge, part of which involves conclusions being set off against principles. Both senses of 'scientia' will be pertinent to our analysis.

The modern conception of science classes different disciplines such as medicine, geometry, biology and astronomy under the one heading of science. They all constitute scientific knowledge. Subject matter aside, little distinction is drawn between the different disciplines, for example, one is not seen to be more certain than another. Aquinas' conception of *scientia* is different. As Stump points out, he speaks of different kinds of *scientia* with respect to different degrees of certainty.⁹ This is a feature which distinguishes *scientia* from its modern cousin. We will look at the reason for this later when outlining Stump's account of *scientia*. For the moment we acknowledge this aspect of St. Thomas' theory of *scientia* and look at what the various kinds of *scientia* have in common.

St. Thomas deals with this matter in the latter part of *In P.A. I 41*. There he states the features which all instances of *scientia* share. One feature the different instances of *scientia* share is that each is concerned with a genus. Scientific knowledge of a genus arises from reasoning based on prior principles:

⁶ *In. P. A. I 4* A fuller version reads: Circa quod considerandum est quod scire aliquid est perfecte cognoscere ipsum, hoc autem est perfecte apprehendere veritatem ipsius: eadem enim sunt principia esse rei et veritatis ipsius. Oportet igitur scientem si est perfecte cognoscens, quod cognoscat causam rei scitae. Si autem cognosceret causam tantum, nondum cognosceret effectum, in actua, quod est scire simpliciter, sed virtute tantum, quod est scire secundum quid et quasi per accidens. Et ideo oportet scientem simpliciter cognoscere etiam applicationem causae ad effectum. Quia vero scientia est etiam certa cognitio rei; quod autem contingit aliter se habere, non potest aliquis per certitudinem cognoscere; ideo ulterius oportet quod id quod scitur non possit aliter se habere. Quia ergo scientia est perfecta cognitio, ideo dicit: cum causam arbitramur cognoscere; quia vero est actualis cognitio per quam scimus simpliciter, addit: et quoniam illius est causa quia vero est certa cognitio, subdit; et non est contingere aliter se habere.

⁷ Later we will examine the meaning of 'certainty'.

⁸ See for example *DV* q14 a1c.

⁹ Stump 1992, page 143.

Therefore, if there be anything which does not have prior principles from which reason can proceed, there cannot be science of such things, if we take science to mean the effect of demonstration, as we do here.¹⁰

As we have said, the issue of principles will be a central element of our analysis. We will begin to address it shortly. *Scientia* in its various guises, as well as resting on principles, is also concerned with the parts out of which its subjects are composed:

For in every science there are the principles of its subject, and these must be considered before all else: for example, in natural science the first consideration is about matter and form, and in grammar about the alphabet.¹¹

Furthermore, *scientia* is also concerned with the essential properties of its subjects. He summarises these features of *scientia* in *In P. A.*I 42. He writes that there are:

two marks of the genus which is the subject of the science: one of these is that it be composed of first principles, and the other is that its parts and properties be *per se*.¹²

This particular *lectio* of *In P.A.* deals with two topics, one of which appears *prima facie* to undermine our assertion that it is possible to have *scientia* of natural kinds. Initially, it states that *scientia* is not concerned with things that occur through fortune. It then goes on to state that “science is not concerned with things that are known according to sense.”¹³ If this is the case, how can we claim to have scientific knowledge of dogs, trees and all the other objects that we sense? The answer lies in the object of sensory knowledge. *Scientia* is not concerned with things which are known according to sense because sensory knowledge reveals only a thing’s accidents, but not its substance or essence. Moreover, the senses deal with singular objects. Herein is the solution to our apparent problem. The object of *scientia* is always universal and necessary. Obviously then we cannot have *scientia* of things known by the senses because they are singular and contingent. However, in the last chapter we have shown how universals are formed from particular instances. It is in this sense that we can have *scientia* of natural kinds. We can have scientific knowledge of the universal which the individual instantiates. Furthermore, universals and essential properties explain the necessity which characterises *scientia*: a necessity which is reinforced in the demonstration from premises to conclusion which characterises *scientia*.

So far we have used two non-contentious aspects of Stump’s and MacDonald’s accounts to illustrate some of the main features of *scientia*: its demonstrative nature, its necessity and certainty and, not least, the role of principles. Now we turn to the analyses of MacDonald and Stump. Examination of what they have to say will shed further light on these features before we move on to offer our own analysis.

¹⁰ Si qua ergo res est, quae non habeat principia priora, ex quibus ratio procedere possit, horum non potest esse scientia, secundum quod scientia hic accipitur, prout est demonstrationis effectus.

¹¹ *ibid.* In qualibet enim scientia sunt quaedam principia subiecti, de quibus est prima consideratio sicut in scientia naturali de materia et forma, ut in grammatica de literis.

¹² Circa primum considerandum est quod supra duas condiciones posuerat generis, quod est subiectum scientiae: quarum una est ut componatur ex primis, alia est ut partes et passionem sunt eius per se.

¹³ Scientia non est eorum quae cognoscuntur secundum sensum.

In the extract from *In P.A. I 4* which we quoted earlier, Aquinas said that “science is the sure and certain knowledge of a thing”. In his analysis MacDonald emphasises the certainty of *scientia*. Much of his analysis states what we have already seen. *Scientia*, MacDonald notes, is grounded on principles which are known by themselves.¹⁴ MacDonald refers to them as ‘first principles’. These principles are the epistemic foundations of *scientia* because they form the premises of the demonstrative syllogism from which the conclusions, which constitute *scientia*, are drawn.¹⁵ MacDonald notes that Aquinas calls these principles ‘immediate propositions’ because they themselves are indemonstrable.¹⁶ It is from the indemonstrability of these immediate propositions and the process of demonstration that *scientia* obtains its certainty; the conclusion of the demonstration, the object of *scientia*, has inferential justification. We have already seen elsewhere that the inferential nature of the conclusion’s justification leads MacDonald to emphasise *scientia*’s foundationalist structure.

The first principles which function as the epistemic foundations of *scientia* are universal and necessary, they are metaphysically and epistemically prior to, and explanatory of, the conclusions which they demonstrate.¹⁷ That first principles are epistemically prior to their conclusions is not a revelation. However some of the other terms which MacDonald uses to describe them require unpacking. The propositions are explanatory because, as is frequently stated in *In P.A.*, such propositions can be thought of as offering the explanation of what is expressed in the conclusion. MacDonald acknowledges this.¹⁸ We will return to this matter later. The following extract illustrates the universality, necessity and immediacy of first principles as well as hinting at the importance of metaphysics in the enterprise:

Aquinas’s logic and epistemology rest here on his metaphysical realism. He holds that there are real natures of naturally occurring substances and accidents and that these real natures can provide the content of universal categorical propositions. Genuine kind terms refer to real natures, and real definitions explicate these natures by identifying a kind’s genus and specifying differentia (which are also real natures). Thus, ‘human being’ refers to the real nature *human being*, the real definition of which is *rational animal*. When Aquinas says that an immediate proposition is one in which the predicate belongs to the account (or definition-*ratio*) of the subject, he means that the real nature referred to by the predicate term is an element in the real definition of the subject, that the predicate term names the subject’s genus or specifying differentia (for example, A human being is an animal).¹⁹

It is this relationship between the subject and predicate which grounds the universality and necessity of the proposition, every human being is a rational animal and given what it is to

¹⁴ MacDonald 1993, page 178.

¹⁵ *ibid* page 165 .

¹⁶ *ibid* page 169 Earlier we saw that Aquinas called them prior principles.

¹⁷ *ibid* page 173.

¹⁸ *ibid* page 170.

¹⁹ *ibid* page 170.

be human, it is necessarily the case that human beings are rational animals. The immediacy and indemonstrability of the proposition also rest on this relationship between the subject and predicate. The particular proposition which MacDonald uses as an example is manifestly an immediate proposition, given we know what 'human being' and 'rational animal' mean. As we will see, Stump raises concerns about the immediacy of propositions like this. We will look in detail at such propositions in the next section. For the moment we note how MacDonald, after noting the importance of metaphysics for epistemology, goes on to clarify what is meant by metaphysical priority:

When he [Aquinas] claims that the first principles of demonstration must be immediate and indemonstrable, he is claiming that they must express metaphysically immediate propositions and not just propositions that are epistemically basic and unprovable for some particular epistemic subject..... the structure of the demonstration, then, is isomorphic with the metaphysical structure of reality: immediate, indemonstrable propositions express metaphysically immediate facts, whereas mediate, demonstrable propositions express metaphysically mediate facts.²⁰

MacDonald's comments on the distinction he makes between immediate and mediate metaphysical facts needs to be clarified. There are two possible interpretations of what he means. It could be, and it does seem likely, that MacDonald is simply referring to natural priority in the sense that some things are naturally prior to other things. For example, rationality is naturally prior to risibility: if humans weren't rational then they would not be capable of laughing at the joke. Rationality grounds, is naturally prior to, risibility. This may be what MacDonald means by immediate and mediate metaphysical facts: rationality is an immediate metaphysical fact and risibility, being a consequence of the former, is a mediate metaphysical fact. The immediate and mediate character of these facts can be more clearly seen in a syllogism demonstrating the cause of risibility. In this demonstration the immediate indemonstrable propositions, the proper principles, would express humanity's rationality and risibility. The mediate demonstrated proposition, the conclusion, would make explicit what is contained in the premises and express the cause of humanity's risibility, namely rationality. However, that this is what MacDonald means is not entirely clear. It is clouded by his reference to metaphysically immediate propositions and the underlying epistemic tone of his discussion. Thus, another, more critical interpretation is possible which sees MacDonald confusing epistemology and metaphysics. Surely there are just metaphysical facts, some of which we will be immediately aware of and others not? The lack of immediacy in the latter case is an epistemic matter, not a metaphysical matter. This seems to undermine his assertion that propositions can be metaphysically prior: metaphysically prior to what? If this second interpretation is what is meant, he would be better to say that some propositions about metaphysical facts are epistemically prior to others. The fact that we can come have *scientia* about some aspect of humanity by demonstrating from propositions such as 'humans are rational animals' does not make that demonstrated fact of which we have *scientia* metaphysically posterior to the fact that humans are rational animals. It is merely

²⁰ *ibid* page 170.

epistemically posterior. While it seems acceptable to speak in epistemic terms of immediate and mediate propositions, the latter derived from the former; on this interpretation it doesn't seem acceptable or helpful to use the same language with respect to metaphysics because we are left asking the question what is a metaphysically mediate fact?

The close connection he draws between metaphysics and epistemology serves to illustrate the aforementioned problem with the immediacy of some propositions. MacDonald says:

Non-inferential justification, then, consists in one's being directly aware of immediate facts that ground a proposition's necessary truth. When one sees that a proposition expresses an immediate fact of this sort, one cannot doubt its truth (since one cannot conceive of it being false) or be mistaken in holding it. Aquinas says that in these cases immediate propositions are evident to us.²¹

Propositions are immediate to us when we see that they express an immediate metaphysical fact. What about those cases when propositions do express immediate facts, but we do not know that they do because we fail to see the relation between the subject and predicate? Is a proposition of this kind immediate or mediate? Will it be immediate for some people and not for others? MacDonald attempts to deal with this. His attempt rests on a distinction which Aquinas makes:

Aquinas distinguishes between immediate propositions whose terms are common or grasped by everyone, which he calls common principles or common conceptions of the mind, and those whose terms are conceived by only some people.²²

Aquinas does indeed make this important distinction. But as MacDonald tells it, it is not the whole story. There are more to common principles than the fact that they are grasped by everyone. Eleonore Stump tells a far more accurate tale which we will look at shortly. Of the other kind of principles not grasped by everyone MacDonald goes on to say:

One is directly aware of the necessary truth of an immediate proposition only when one conceives the natures of the subject and predicate. Moreover, Aquinas holds that it is difficult to attain complete conception of certain things. It follows that direct awareness of the necessary truth of immediate propositions about certain things will be difficult to attain. Propositions of this sort, then, can be epistemic foundations absolutely speaking despite being opaque to some, or even many, normal people.²³

While they may express 'metaphysically immediate facts', can we really claim that they are epistemically immediate if we have to be told that they are so, or work out that they are so? Surely, one has to know that a human is a rational animal before one can see the immediacy of that proposition? Only when we know the meaning of the terms is the proposition self-evident. But does this not mean that self-evidence is something that, in a sense, has to be discovered? Yes, but it doesn't stop the proposition being self-evident. '2+2=4' is self-evident, but at some point in school we had to discover this. Furthermore, there is no reason why self-evident propositions cannot be derived from the conclusion of another syllogism.

²¹ *ibid* page 171.

²² *ibid* page 172.

²³ *ibid* page 178.

Stump offers a fuller analysis than MacDonald of immediate principles. In due course we will outline her remarks about them and then, later, give a full analysis of principles as discussed in *In P. A.*

Having looked at what MacDonald has to say about principles we now turn to his description of the enterprise of *scientia*. He doesn't actually describe, in much detail, what is entailed in the demonstration. Rather his description tends to reflect his foundationalist leanings, emphasising the derived epistemic certainty of the conclusion. As he has describes it, *scientia* is a matter of reasoning from immediate propositions, the epistemic foundations of *scientia*, to a conclusion. He says:

...to have *scientia* with respect to some proposition *P* is to hold *P* on the basis of a demonstrative syllogism, that is, to hold *P* where one's epistemic grounds for *P* are the premises of the syllogism and the fact that *P* is entailed by those premises.²⁴

Elsewhere he writes:

*On the one hand, our having scientia with respect to some proposition P is characterised by certainty by virtue of our holding P on the basis of valid syllogistic inferences whose ultimate premises are necessarily true propositions whose falsity is inconceivable to us. Inferences of this sort from premises of this sort establish the necessary truth (and hence, objective certainty) of their conclusions and thereby provide us with paradigmatically compelling evidence for (and hence, subjective certainty with respect to) those conclusions. On the other hand, our having scientia with respect to P constitutes complete cognition of P, because to hold P on the basis of demonstration is to have located P in a wider explanatory structure or theory that maps objective reality.*²⁵ [My emphasis]

These descriptions, particularly the first sentence of the second extract highlighted above, show the importance he places on the premises of the demonstration in the move from what is more known and epistemically prior to what is less known and epistemically posterior. This kind of inference gives *scientia* its certainty. MacDonald's reading suggests a process of beginning with immediate principles and then reasoning to a conclusion, as one would do in a mathematical proof. He is extremely interested in the matter of epistemic justification. As we will see, this may not be as important as he believes. As comparison with Stump's account will show, MacDonald's analysis appears to emphasise the foundationalism of *scientia* to the detriment of other aspects of it, such as the explanatory nature of *scientia*, which he does refer to above. This feature of *scientia* is mentioned but a few times in his article in contrast to continual references to *scientia's* foundationalism.

Stump's account is more thorough than MacDonald's. We have already noted in chapter two that she considers a foundationalist interpretation of Aquinas' epistemology to be very mistaken. Such an interpretation, she writes, may arise because people have mistakenly taken '*scientia*' to be equivalent to 'knowledge' and thus seen *In P. A.* as Aquinas'

²⁴ *ibid* page 164.

²⁵ *ibid* page 171.

exposition of his theory of knowledge.²⁶ She begins by noting the role of the demonstrative syllogism in the process of *scientia*. She notes the indemonstrability of the first principles:

There is no cognition that has more certitude than the cognition of such first principles, and they are the cause of certitude in one's cognition of other propositions. They are not only necessary but known *per se* and any *scientia* takes its certitude from them.²⁷

She notes that self-evident propositions, or immediate propositions, such as the law of non contradiction, definitions and propositions about immediate sensory experience seem to be candidates for first principles. All this, she notes "certainly give rise to the impression of Foundationalism."²⁸ She then sets out to disabuse one of such an interpretation.

We have already noted that we cannot have *scientia* of the objects of sensory knowledge because *scientia* is always of what is universal and necessary. Stump acknowledges this in discounting propositions about immediate sensory experience as first principles of *scientia*. Later we will return to this important matter of the relationship between *scientia* and perceptual knowledge. She turns her attention to self-evident propositions. Importantly, she distinguishes between two kinds of immediate principles: common principles and proper principles. MacDonald, as we saw, did allude to this distinction, but Stump gives a fuller description of St. Thomas' thought.²⁹ Common principles such as 'a whole is greater than its parts' are common to every *scientia* and are known by the light of natural reason. Proper principles, in contrast, are proper to each *scientia*. This is an important distinction which we will examine in detail later. For the moment we note that Stump says that common principles can't serve as the first principles of *scientia* because there is no guarantee that a common principle will be accepted as such by an individual, or that an individual will not mistakenly take a proposition to be a common principle when in fact it isn't.³⁰ Given the possibility of error, according to Stump, there is thus no guarantee that what is built on common principles will be knowledge.³¹ We have previously acknowledged the problem of being unaware that a proper principle is immediate. At this point we merely note her concern and reiterate MacDonald's assertion that they can be epistemic foundations absolutely speaking, in the way that 'two plus two equals four' even when the innumerate infant doesn't know that. We will leave detailed comment on common principles until later, but we do note Aquinas' remark in *DV* q16 a2c regarding common principles:

Hence, too, it is that all speculative knowledge [*specifica cognitio*] is derived from some most certain knowledge concerning which there can be no error. This is the knowledge of the first general principles, [*primorum principiorum universalium*] in reference to which everything else which is known is examined and by reason of

²⁶ Stump 1992, page 132.

²⁷ *ibid* page 133.

²⁸ *ibid* page 133.

²⁹ *ibid* page 138ff.

³⁰ *ibid* page 138.

³¹ *ibid* page 140.

which every truth is approved and every falsehood rejected. If any error could take place in these, there would be no certainty in the whole of knowledge which follows.³²

It may be feasible for someone to mistakenly take a proposition to be a common principle when it isn't. However, when we come to look at common principles we will see how improbable that is. We will also see the ground for Aquinas' assertiveness on the matter.

Stump also has a problem with proper principles. The problem focuses on the matter of the proper principle's universality which is established by means of induction. She writes:

So not only is there no guarantee that what a cognizer uses as a proper first principle of *scientia* will be something known with certainty, there isn't even a guarantee that what the cognizer starts with as a first principle will be true, since it the result of induction.....Since what we use as a first principle has to be the result on induction, what we use as first principles might very well not be genuine first principles at all, and there is no simple procedure for telling the genuine from the counterfeit. Even when a cognizer does begin with a genuine first principle, however, he will not be starting with a properly basic proposition, since the genuine first principle he begins with will be derived by induction.³³

Given this question of induction and the other problems concerning the propositions which could serve as first principles in a foundationalist reading of Aquinas, she writes:

So, to summarise, then, on the view which takes Aquinas to be a Foundationalist, what constitutes the foundations for knowledge for him are propositions evident to the senses and the first principles of *scientia*; these will be properly basic propositions which are known with certainty and from which all other non-basic propositions known with certainty are derived. But, in fact, the evidence that Aquinas is a foundationalist depends on interpreting '*scientia*' as equivalent to 'knowledge' and we have seen good reasons for supposing that such an interpretation is decidedly mistaken.³⁴

We concur with Stump that there is more to Aquinas' account of human epistemology than *scientia*. We have shown that, generally speaking, Aquinas' account of human epistemology is not foundationalist. However, we have acknowledged that one part of his human epistemology, *scientia*, does have a foundationalist structure. Stump appears to disagree with this.

A significant part of Stump's critique of a foundationalist reading of *scientia* rests on the

³² Inde est etiam quod omnis specifica cognitio derivatur ab aliqua certissima cognitione circa quam error esse non potest, quae est cognitio primorum principiorum universalium, ad quae omnia illa cognita examinantur, et ex quibus omne verum approbatur, et omne falsum respuitur. In quibus si aliquis error posset accidere nulla certitudo in tota sequenti cognitione inveniretur.

The translator of the above text has translated *specifica cognitio* as 'speculative knowledge'. a more accurate translation is specific cognition.

³³ Stump 1992, page 142.

³⁴ *ibid* page 143.

matter of induction and proper principles. Towards the end of his article MacDonald makes some remarks regarding induction and first principles. He writes:

When Aquinas says that we cognize these universal principles by means of induction, he is not making a point about our epistemic justification for holding them. He does not mean that we are inferentially justified in holding these universal principles on the basis of inductive generalisation.³⁵

MacDonald goes on to clarify this statement. According to him, the universal principles which Aquinas is writing about in the relevant part of *In P. A.*³⁶ are not the propositions themselves but the universal natures which the terms of the propositions refer to. This is an important point. In the last chapter we outlined how these universals are formed by means of induction; a kind of induction which is not the same as that of inductive generalisation. This kind of induction, abstracting from particular cases what they have in common, is the intellect's way of forming universals. It has nothing in common with what we term inductive generalisation. That the terms of the proposition are formed in this way is of no particular significance with respect to the proposition's immediacy. What is important is the meaning of the terms which constitute the subject and the predicate. Crucially, first principles are not formed by the kind of induction which Stump believes they are. Given that her anti-foundationalist reading of *scientia* places a great deal of emphasis on the role of induction in the formation of principles, one pillar of her anti-foundationalist reading of *scientia* seems to have crumbled. In the next section of this chapter we will discuss the relationship between perceptual knowledge and *scientia* by looking at the formation of principles.

Stump concludes her anti-foundationalist polemic by questioning the translation of '*certitudo*' as 'certainty'. According to her, such a translation is misleading.³⁷ It is as part of her discussion of '*certitudo*' that she refers to different kinds of *scientia*. Aquinas, she notes, "compares one *scientia* to another to determine which has more *certitudo*."³⁸ As stated above, we will look at 'certainty' later. Here, having already looked at what the various different kinds of *scientia* have in common, we will look at what sets them apart.

It is no coincidence that reference to various kinds of *scientia* should take place when Stump is discussing '*certitudo*' because certainty (Stump's concern about this translation notwithstanding) is an important factor in distinguishing different kinds of *scientia*. One kind of *scientia* differs from another because according to Aquinas some kinds of *scientia* are more certain than others. That there are varying degrees of certainty among the different sciences is discussed in *In P. A. I 41*. According to him there are three ways in which one science may be more certain than another. First a science is more certain than another if the science, with respect to its object, makes one know *quia* as well as *propter quid*. The less certain science only makes one know *quia*, but not *propter quid*. Knowing *quia* tells one that

³⁵ MacDonald 1993, page 183.

³⁶ *In P. A. II 20*.

³⁷ Stump 1992, page 143.

³⁸ *ibid* page 142.

a thing is so, knowing *propter quid* tells one why it is so. Nevertheless, knowing this distinction hardly clarifies the point he is making. An extract from *In P. A. I 23* makes the same point more perspicaciously:

Hence one way that scientific knowledge *quia* differs from *propter quid* is that it is the former if the syllogism is not through immediate principles but through mediate ones. For in that case the first cause will not be employed, whereas science *propter quid* is according to the first cause; consequently, the former will not be science *propter quid*.³⁹

The important issue here is the principles on which *scientia* is based. Knowledge arising from immediate principles, the cause of the thing, makes one know why such and such is the case. Knowledge *propter quid* is knowledge of the cause of the thing, knowledge why the thing is so. As we will see later, to have knowledge of the cause of a thing is to know the thing perfectly. Some kinds of *scientia* are not based on such immediate principles, but mediate principles. This is what makes these types of *scientia* less certain than others. These mediate principles are the conclusions of other types of *scientia*. In other words, the less certain kinds are subordinate to other kinds of *scientia*:

This is the relation of subalternating science to subalternate, as has been said above, namely, that the subalternate science in isolation knows *quia* without knowing *propter quid*: thus a surgeon knows that circular wounds are healed more slowly, but he does not know why. But such knowledge pertains to the geometer who considers that characteristic of a circle according to which its parts do not lie close enough to form an angle, the nearness of whose sides makes triangular wounds heal more quickly.⁴⁰

The archaic physiology aside, his point is clear. The science of geometry can explain why the wound does not heal. The science of surgery, on the other hand, can only state that it does not. To this extent the science of surgery is less certain than that of geometry because, for example, its conclusion regarding the healing capacity of circular wound depends on the conclusions of geometry.

The example of geometry and surgery takes us to the second distinction between a more certain and less certain *scientia*. *Scientiae*, such as geometry, are more certain than *scientiae* such as surgery because the latter deals with sensible matter:

Hence he [Aristotle] says here that arithmetic is both more certain and prior to music: it is prior, because music uses its principles for something non-mathematical; it is more certain, because lack of certitude arises from matter's changes. Hence the

³⁹ Uno igitur modo differt scire quia ab hoc quod est scire propter quid scire quia est si non fiat syllogismus demonstrativus per non medium idest per immediatum, sed fiat per mediata. Sic enim non accipietur prima causa cum tamen scientia quae est propter quid sit secundum primam causam. Et ita non erit scientia propter quid.

⁴⁰ *In P. A. I 41* Hic enim est dispositio subaltemantis ad subalternatum, ut supra dictum est: nam scientia subalternata separatim scit quia nesciens propter quid sicut chirurgicus scit quod vulnera circularia tardius curantur non autem scit propter quid. Sed huiusmodi cognitio pertinet ad geometram, qui considerat rationem circuli, secundum quam partes eius non appropinquant sibi per modum anguli, ex qua propinquitate contingit quod vulnera triangularia citius sanantur.

closer one gets to matter, the less certain the science.⁴¹

The final distinction between more and less certain type of *scientia* is that the more certain arise from fewer things. His example clarifies what he means by this:

.....a science which arises from fewer things is prior and more certain than one which arises from an addition, i.e., than one which results from that addition. And he gives the example that geometry is posterior to and less certain than arithmetic: for the things of geometry are the result of adding to the things which pertain to arithmetic.⁴²

In chapter one, and elsewhere, we have referred to the diversity of the sciences. The comparison, in terms of certainty, drawn between geometry and arithmetic here, shows that Aquinas, when he speaks of different kinds of *scientia*, does not just have the distinction of metaphysics, mathematics and natural science in mind when he says that one science is more certain than and different from another. Most importantly the level of certainty which a particular kind of *scientia* has, is not the central factor which sets it apart from other kinds. Different kinds of *scientia* differ because of the principles on which they rest:

.....for diversity of sciences, diversity of first principles is required.⁴³

We may have suspected that the source of diversity is the different objects which the various kinds of *scientia* have. This, however, is not the case because:

....no matter how diverse certain scientifically knowable objects may be in their nature, so long as they are known through the same principles, they pertain to one science, because they will not differ precisely as scientifically knowable. For they are scientifically knowable in virtue of their own principles.⁴⁴

The diversity of one *scientia* from another depends on the principles from which its conclusions derive, not the objects of scientific knowledge which constitute the conclusions. Principles, as St. Thomas says, are the source of diversity. Ultimately, the difference in the level of certainty between different sciences can also be reduced to the issue of principles because each of the three reasons cited above in our discussion of levels of certainty are really questions of principles. The principles of a more certain *scientia* state *propter quid* and not merely *quia*, those principles will not refer to sensible matter and they will be prior to, more basic than, the principles of a less certain *scientia*. In fact, the conclusions of this more certain *scientia*, as we will see, may also serve as the principles of the less certain *scientia*, as in the case of arithmetic and geometry.

⁴¹ *ibid.* Unde hic dicit quod arithmetica est certior quam musica et prior. Prior quidem, quia musica utitur principiis eius ad aliud: certior autem quia incertitudo causatur propter transmutabilitatem materiae sensibilis; unde quanto magis acceditur ad eam, tanto scientia est minus certio.

⁴² *ibid* ... quod scientia quae est ex paucioribus, est prior et certior ea quae est ex appositione, idest quam illa quae se habet ex additione. Et ponit exemplum. Sicut geometria est posterior et minus certa quam arithmetica: habent enim se ea de quibus est geometria, ex additione ad ea de quibus est arithmetica.

⁴³ *ibid.* Unde requiritur diversitas primorum principiorum ad diversitatem scientiarum

⁴⁴ *In P. A. I 41* Et ideo quantumcunque sint aliqua diversa scibilia secundum suam naturam dummodo per eadem principia sciantur, pertinent ad unam scientiam: quia non erunt iam diversa in quantum sunt scibilia. Sunt enim per sua principia scibilia

We began this digression on different kinds of *scientia* by looking at Stump's polemic against a foundational reading of Aquinas, we now return to her account because the undermining of a foundationalist reading of *scientia* is not her whole story. The main thrust of her argument develops, as we noted in a previous chapter, a reliabilist reading of Aquinas. She also gives a positive description of *scientia*, centred on the explanatory nature of *scientia*. Stump states that descriptions of the causes of the conclusion serves as the premises of the demonstration.⁴⁵ We have seen that MacDonald also acknowledges that immediate propositions state causes. He acknowledges this explanatory dimension of *scientia* when he speaks of premises which express causes furnishing theoretically deep explanations of the conclusion.⁴⁶ Nevertheless there is a fundamental difference between what he says about the premises and what Stump says. According to her, *scientia* is not a theory of knowledge, as the foundationalist interpreter would have us believe, rather *scientia* is:

a matter of cognizing causes of things, of finding causal explanations for currently accepted claims.⁴⁷

Scientia, Stump makes clear, is not simply a matter of beginning to reason to unknown conclusions from immediate principles. Rather it is a matter of finding explanations for propositions which we already accept.⁴⁸ The greater emphasis she places on causal explanation than MacDonald, undermines the foundationalist slant that MacDonald gave to *scientia*. In that foundationalist account he emphasised the importance of epistemic certainty. Stump challenges this aspect of *scientia*, rather:

...demonstration isn't a matter of starting with epistemically certain propositions and deducing conclusions which are consequently equally certain, in order to have knowledge of a particularly rigorous sort. Rather on his [Aquinas] account, in order to find a demonstration we need to look for causes of what is described in the claim that is to be the conclusion of the demonstration. Once we have the demonstration, we have *scientia* of the subject matter presented in that claim in virtue of having a causal explanation of the state of affairs described in the demonstration's conclusion. And what demonstration confers is not so much epistemic certainty as it is depth of understanding.⁴⁹

For her *scientia* is not a matter of certainty, but of deeper understanding: understanding more fully thanks to the causal explanations which constitute the demonstration. This interpretation could be called the causal theory of *scientia* and that proposed by MacDonald, the foundational theory of *scientia*.

According to Stump her causal theory of *scientia* is indicative of the process of judgment which Aquinas outlines in *In P. A.*, where judgment is the process of reasoning to first

⁴⁵ Stump 1992, page 153.

⁴⁶ MacDonald 1993, page 170.

⁴⁷ Stump 1992, page 152.

⁴⁸ *ibid* page 152.

⁴⁹ *ibid* page 154.

principles, by means of analysis, rather than starting from them to infer other propositions.⁵⁰ She says:

The subject matter [the process of judgment outlined in *In P. A*] has as its main emphasis finding causal explanations for the states of affairs described in claims which become the conclusions of demonstrative syllogisms, and tracing those causal explanations back to first principles. And the point of this process is to yield a deeper understanding of the nature of the state of affairs being described. So a demonstrative syllogism produces *scientia* in virtue of the fact that it shows the causes and so provides an explanation of the syllogism's conclusion.⁵¹

The certainty and necessity of *scientia* rests not on the fact that it is a foundationalist enterprise resting on self-evident propositions, but on the fact that it gives a deep causal explanation of the conclusion: the fullest explanation possible. The mistaken foundationalist theory of *scientia*, as she sees it, results from reading *scientia* as a process of discovery rather than judgment. According to her the process of discovery, reasoning from first principles to other propositions, does not yield *scientia* and in fact, this process is not dealt with in *In P. A.* but in the *Topics*.

We have outlined two different descriptions of *scientia*, aspects of both we find reason to agree with. In previous chapters we have acknowledged the foundationalist structure of *scientia*, but it is not the single most important feature of *scientia*. MacDonald's excessive foundationalism becomes apparent in comparison to Stump's account. Stump's causal theory of *scientia* concurs with what we had to say regarding knowledge of essences in the last chapter. Not only have we outlined and contrasted their analyses we have also, where necessary, expanded upon what they had to say in order to outline the principal features of *scientia*, its structure: demonstration from principles, its concern with universals and essential properties, its necessity and certainty. We have seen that different principles give rise to different kinds of *scientia*, with varying degrees of certainty. In both analyses we have seen a great deal of discussion focus on the principles of *scientia*. We now embark upon our own analysis of the principles of *scientia*.

b. Scientia: an analysis

The sole aim of this section is to offer an analysis of *scientia* which will show its relationship to perceptual knowledge. This will help us to come to deeper understanding of the nature of *scientia* and a conclusion regarding the accuracy of both interpretations which we have outlined in the previous section. As stated above, our analysis will focus on the principles which are used in scientific demonstrations. For simplicity's sake, we will restrict our analysis to principles which are universal affirmative statements. Consequently, on the occasions when we refer to the demonstrative syllogisms which use these principles, these

⁵⁰ *ibid* page 156.

⁵¹ *ibid* page 156.

sylogisms will be of the form AAA-1, traditionally labelled 'Barbara.'⁵² Not all demonstrative syllogisms are of this form. For the purposes of this analysis it is enough merely to acknowledge this. Furthermore, the focus of our analysis will be on *scientia* in the sense of the natural sciences. Inevitably, some reference will be made to the mathematical sciences, but our primary concern will be with natural science and in particular demonstration *propter quid*. We will not be concerned with demonstration *quia*. These self-imposed restrictions will not affect the conclusions which we will draw concerning the relationship between perceptual knowledge and *scientia*.

After the conflicting views of the last section we begin our analysis of *scientia* by offering a simple description of *scientia*. St. Thomas writes in *In P.A.* I 18:

For every demonstrative science is concerned with three things: one is the generic subject whose *per se* attributes are investigated; another is the common (axioms) dignities from which, as from basic truths, it demonstrates; the third are the proper attributes concerning which each science supposes what their names signify.⁵³

Elsewhere Aquinas shows the relationship between the three things. He writes :

the object of which scientific knowledge is sought through demonstration is some conclusion in which a proper attribute is predicated of some subject, which conclusion is inferred from the principles. ⁵⁴

And he [Aristotle] says that proper principles are things supposed in the sciences as existing, namely, the subjects, whose proper attributes are investigated in the sciences.⁵⁵

It all seems very straight forward. The demonstration will show why a proper, or *per se*, attribute, can be predicated of a subject; knowledge of this constitutes *scientia*.

Demonstrating from immediate principles (which contain the subject, middle term and proper attribute), or common dignities as they are called above, a connection via a middle term is made between the subject and a proper attribute. The conclusion makes explicit this connection. It is in this sense the demonstration can be said to give the cause why the proper attribute can be predicated of the subject, since it shows that the proper attribute follows from the nature of the subject. This is indeed a simple explanation of *scientia*, one which appears to concur with Stump's causal description. However, by the end of this analysis we

⁵² For example, a syllogism such as: All Greeks are European. All Athenians are Greeks. Therefore, all Athenians are Greek.

⁵³ *In P. A.* I 18 Omnis enim scientia demonstrativa est circa tria: quorum unum est genus subiectum, cuius per se passiones scrutantur; et aliud est communes dignitates, ex quibus sicut ex primis demonstrat; tertium autem passiones, de quibus unaquaeque scientia accipit quid significant.

⁵⁴ *In P. A.* I 2 Circa primum sciendum est quod id cuius scientia per demonstrationem quaeritur est conclusio aliqua in qua propria passio de subiecto aliquo praedicatur: quae quidem conclusio ex aliquibus principiis inferitur.

⁵⁵ *In P. A.* I 18 Dicens quod propria principia sunt quae supponuntur esse in scientiis, scilicet subiecta, circa quae scientia speculatur ea quae per se insunt eis.

will see that while our simple explanation is not inaccurate it is superficial; a complex series of processes underlie this search for causal explanations.

In our simple explanation, and in the preceding section on the work of Stump and MacDonald, the importance of principles is obvious. Both Stump and MacDonald acknowledge, to varying degrees, the distinction St. Thomas makes between common and proper principles. For MacDonald common principles were grasped by everyone, whereas proper principles were not. Stump went further; according to her common principles are known by the light of natural reason and are common to every science, whereas proper principles are proper to each *scientia* and only these serve as the principles of *scientia*. We will now analyse common principles and the intellect's grasp of them; this will clarify the difference between them and proper principles. This will clear the way to consider proper principles and the demonstration which results in *scientia*.

i. Common principles

Common principles are absolutely indemonstrable.⁵⁶ They are, as St. Thomas describes them, 'common conceptions of the mind.'⁵⁷ Two examples of common principles which he frequently cites are:

One should not affirm and deny the same thing. (The law of non contradiction)

There is either true affirmation or true negation of each thing. (The principle of bivalence)

Of common principles like these Aquinas says:

...the common conceptions in the mind have something in common with the other principles of demonstration and something proper: something common, because both they and the others must be true in virtue of themselves. But what is proper to the former is that it is necessary not only that they be true of themselves but that they be seen to be such. For no one can think their contraries.⁵⁸

Here we see what common principles have in common with proper principles: like them they are true in virtue of themselves; unlike them, they must be seen to be such. At first glance this may seem to confirm MacDonald's description of common principles as grasped by everyone, as opposed to proper principles which are not. However, the reality is somewhat more complex. To fully understand what sets common principles apart from proper principles, first, the phrase 'no one can think of their contraries' needs to be investigated. Second, the relationship between the common principles and demonstrative science also needs to be analysed.

⁵⁶ *In P. A. I* 20

⁵⁷ *In P. A. I* 18

⁵⁸ *In P. A. I* 19 Circa primum considerandum est quod communes animi conceptiones habent aliquid commune cum aliis principiis demonstrationis, et aliquid proprium. Commune quidem habent, quia necesse est tam ista, quam alia principia per se esse vera. Proprium autem est horum principiorum quod non solum necesse est ea per se vera esse, sed etiam necesse est videri quod per se sint vera. Nullus enim potest opinari contraria eorum.

To understand why no one can think of their contraries we need to understand the manner in which we know common principles. *In P.A. I 19* distinguishes between common principles, on the one hand, and postulates and suppositions, on the other. It states:

He [Aristotle] proves this in the following way: A postulate and a supposition can be confirmed by a reason from without, i.e., by some argumentation; but a common conception in the mind does not bear on a reason from without (because it cannot be proved by any argument), but bears on that reason which is in the soul, because it is made known at once by the natural light of reason [*lumine naturalis rationis statim fit nota*].⁵⁹

Common conceptions are not only true in themselves, but are seen to be such because of the natural light of our reason. We will comment on this “natural light of reason” momentarily. Prior to that, we need to outline the assertion Aquinas is making about common principles. His argument is that their truth need not be proved by argumentation or rational inquiry because our intellect is able to grasp immediately the truth of these principles. The truth of propositions like ‘one should not affirm and deny the same thing’ is grasped as soon as the proposition’s meaning is understood. This is why we cannot think of their contraries.

Aquinas goes on to expand on this:

On the other hand, some things are so true that their opposites cannot be conceived by the intellect. Therefore, they cannot be challenged in the inward reason but only by an outward reason which is by the voice. Such are the common conceptions in the mind.⁶⁰

Once the meaning of the principle is understood the intellect grasps immediately the truth of the principle. Their truth is so obvious that we cannot conceive of their contrary. Clearly, in the extremely unlikely case that we do not know what a common principle means, we will not immediately grasp its truth. This is what Aquinas means when he says that common principles can only be challenged by outward reason which is the voice. This instance aside, it is the intellect’s ability to grasp immediately the truth of these principles which sets them apart from proper principles.

So unlike proper principles common principles are “made known at once by the natural light of reason.” This phrase, ‘the natural light of reason’ does not tell us very much about how or why the intellect immediately grasps these principles. More importantly, clarification of the phrase is required if misunderstanding is to be avoided. In fact an important element of

⁵⁹ *In P. A. I 19* To give the flavour of Aquinas’ argument we begin our quote one sentence before the translation quoted above.

Dicit ergo quod illud principium quod necesse est non solum per seipsum esse, sed etiam ulterius necesse est, ipsum videri, scilicet communis animi conceptio vel dignitas, non est neque petitio neque suppositio. Quod sic probat. Petitio et suppositio exteriori ratione confirmari possunt, id est argumentatione aliqua. Sed communis animi conceptio non est ad exterius rationem, quia non potest probari per aliquam argumentationem, sed est ad eam quae est in anima, quia lumine naturalis rationis statim fit nota.

⁶⁰ *ibid.* Quaedam autem adeo vera sunt, quod eorum opposita intellectu capi non possunt; et ideo interiori ratione eis obviari non potest, sed solum exteriori, quae est per vocem. Et huiusmodi sunt communes animi conceptiones.

Aquinas' human epistemology lies behind this short phrase. What Aquinas casually refers to here as the 'natural light of reason' he actually discusses in great detail elsewhere.⁶¹ In these discussions he refers to it by its proper name: *intellectus*, the habit of grasping first principles. Consequently, to fully understand common principles we need to examine the manner in which we know them, this habit of grasping first principles. Only by doing this will we see why no one can think their contraries.⁶²

As we embark on this discussion of the natural habit of grasping first principles we ought to recall a point raised in chapter one: Aquinas uses the same word to refer to the habit of grasping first principles as he does to refer to understanding. An American scholar writing on Aquinas' account of the intellectual virtues describes the ways in which *intellectus* is used:

Intellectus, sometimes stands for the soul's immaterial faculty of cognition, sometimes for a mode of knowledge; and sometimes for the object known. Again, and strictly formally, it signifies the virtue of the intellect known as the habit of first principles.⁶³

These different uses can sometimes lead to ambiguity. An extract from *In D. A.* shows one attempt to avoid ambiguity:

Nor is he [Aristotle], apparently speaking of the understanding as a faculty (i.e. of the intellect); else it would be set apart from science and opinion, which both belong to it as a faculty. But 'understanding' means here an infallible, immediate and intuitive grasp of such intelligible objects as the first principles of knowledge, while scientific knowledge means certain knowledge obtained by rational investigation.⁶⁴

Reading *intellectus* as the intellect's faculty of understanding, as opposed to the intellect's immediate and intuitive grasp of principles would have led to a misunderstanding, one that Aquinas is at pains to avoid. For the purposes of this discussion we merely need to note the different uses of *intellectus*. We are primarily concerned with the habit of grasping first principles, the exercise of which is an act of understanding.

Since this work is a discussion of his epistemology from the perspective of *ST* 1a q84, we will approach the habit of grasping first principles from that direction. He writes:

Aristotle, in speaking of the intellect, says that it is like a writing tablet on which as

⁶¹ In the following discussion we will look at references from various works including *De Veritate*, *Summa Theologiae* and *De Virtutibus in Communi*.

⁶² Since *In P.A* I 19 is discussing how common principles differ from one another and not actually our knowledge of them, Aquinas presumably chose to use "the natural light of reason" in order to keep his argument as simple and lucid as possible.

⁶³ Brennan 1941, page 17.

⁶⁴ *In D. A.* III 5 Et videtur quod intellectus non accipiatur hic pro potentia; sic enim contra intellectum non dividerentur scientia et opinio, quae ad potentiam intellectivam pertinent: sed intellectus accipitur pro certa apprehensione eorum quae absque inquisitione nobis innotescunt, sicut sunt prima principia, scientia vero pro cognitione eorum, de quibus certificamur per certitudinem vel investigationem rationis.

yet nothing is written.⁶⁵

As we have already seen, in this particular question of the *Summa Theologiae* Aquinas begins to develop his epistemological realism by discounting other sources for knowledge, such as that presented by Plato, or knowledge by means of innate species, as in the case with angelic intellection. He comes to the conclusion that it is by means of the senses alone that the human soul acquires knowledge.⁶⁶ In question 85 he goes on to set out his account of the processes involved in this manner of acquiring knowledge.

In the context of his epistemological theory his reference to the *De Anima* is an unambiguous statement of epistemological realism; yet within a few lines of it Aquinas makes another statement, in defence of the thesis that the mind does not know by means of innate species natural to it, which seems to undermine the thrust of his realist argument. He writes:

For no one forgets things that are naturally known—such as the axiom that the whole is greater than any of its parts, and so on.⁶⁷

Fuller accounts of what is contained here are scattered throughout his works. Consider:

Hence it is that human nature, in so far as it comes into contact with the angelic nature, must both in speculative and practical matters know truth without investigation. And this knowledge must be the principle of all the knowledge which follows, whether speculative or practical, since principles must be more stable and certain. Therefore, this knowledge must be in man naturally, since it is a kind of seed plot containing in germ all the knowledge which follows, and since there preexist in all natures certain natural seeds of the activities and effects which follow. Furthermore this knowledge must be habitual so that it will be ready for use when needed.

Thus, just as there is a natural habit of the human soul through which it knows principles of the speculative sciences, which we call understanding of principles, so too, there is in the soul a natural habit of first principles of action, which are universal principles of natural law. This habit pertains to synderesis.⁶⁸

⁶⁵ *ST* 1a q84 a3sc Sed contra est quod Philosophus dicit, de intellectu loquens, quod est sicut tabula in qua nihil est scriptum.

⁶⁶ *ST* 1a q84 a6.

⁶⁷ *ST* 1a q84 a3c Nullus enim homo obliviscitur ea quae naturaliter cognoscit, sicut quod omne totum sit majus sua parte, et alia hujusmodi.

⁶⁸ *DV* q16 a1c Unde et in natura humana, in quantum attingit angelicam, oportet esse cognitionem veritatis sine inquisitione et in speculativis et in practicis; et hanc quidem cognitionem oportet esse principium totius cognitionis sequentis, sive speculativae sive practicae, cum principia oporteat esse stabilliora et certiora. Unde et hanc cognitionem oportet homini naturaliter inesse, cum hoc quidem cognoscat quasi quoddam seminarium totius cognitionis sequentis; sicut et in omnibus naturis sequentium operationum et effectuum quaedam naturalia semina praeexistunt. Oportet etiam hanc cognitionem habitualement esse, ut in promptu existat ea uti cum fuerit necesse. Sicut autem animae humanae est quidam habitus naturalis quo principia speculativarum scientiarum cognoscit, quem vocamus intellectum principiorum; ita in ipsa est quidam habitus naturalis primorum principiorum operabilium, quae sunt naturalia principia iuris naturalis; qui quidem habitus ad synderesim pertinet.

Of those intelligible objects some are naturally known to man from the outset, without any study or inquiry, among these are first principles, not only of the speculative order..... but also of the practical order.....These naturally known truths are the principles of all subsequent knowledge which is acquired by study, whether it be practical or speculative.⁶⁹

Among other things, such as synderesis the natural habit of universal principles of natural law, e.g. do good and avoid evil, Aquinas is speaking about first, or common principles and how we know them. He says such things are ‘naturally known’, that all knowledge follows from this naturally known knowledge. These passages which speak of the foundations of knowledge existing within us, of knowing these foundations without investigation, could be interpreted as undermining his realism. At first glance, they appear to suggest a kind of innate knowledge of first principles and a version of foundationalism. However, this is not the case, as further analysis shows.

It is an epistemological shibboleth of Aquinas that we can know nothing except by means of the senses and the light of the agent intellect. Unlike the angels we do not have innate knowledge. Even our knowledge of the most abstract entities and concepts such as God must in some sense come via the senses. Consider the following:

The knowledge that is natural to us has its sources in the senses and extends just as far as it can be led by sensible things: from these, however, our understanding cannot reach to the divine essence. Sensible creatures are effects of God which are less than typical of the power of their cause, so knowing them does not lead us to understand the whole power of God and thus we do not see his essence. *They are nevertheless effects depending on a cause, and so we can at least be led from them to know of God that he exists and that he has whatever must belong to the first cause of things which is beyond all that is caused.*[My emphasis]⁷⁰

Every act of knowing springs from the senses and the agent intellect. Just as the senses are the ultimate source of our knowledge of God so too they have a causal role in the understanding of first principles:

In human beings, therefore, there are some natural habits, which are due partly to

⁶⁹*De Virt* q1 a8c Quorum quaedam statim a principio naturaliter homini innotescunt absque studio et inquisitione: et huiusmodi sunt principia prima, non solum in speculativis.....sed etiam in operativis.....Haec autem naturaliter nota, sunt principia totius cognitionis sequentis, quae per studium acquiritur: sive sit practica, sive sit speculativa.

Note that the original text does not use the word “truth”, but actually says, “ But these naturally known things...” See also *DV* q11 a1, *ST* 1a q79 a12, *Meta* IV.6 for similar statements regarding all knowledge following from first principles.

⁷⁰ *ST* 1a q12 a12c. Dicendum quod naturalis nostra cognitio a sensu principium sumit. Unde tantum se nostra naturalis cognitio extendere potest in quantum manuduci potest per sensibilia. Ex sensibilibus autem non potest usque ad hoc intellectus noster pertingere quod divinam essentiam videat; quia creaturae sensibiles sunt effectus Dei virtutem causae non adaequantes. Unde ex sensibilibus cognitione non potest tota Dei virtus cognosci, et per consequens nec ejus essentia videri. sed quia sunt effectus a causa dependentes, ex eis in hoc perducere possumus ut cognoscamus de Deo an est, et ita cognoscamus de ipso ea quae necesse est ei convenire, secundum quod est prima omnium causa excedens omnia sua causata.

nature and partly to external agents; but we must distinguish here between cognitive and appetitive faculties. In cognitive faculties there are both habits which are natural to the species and habits which are natural to the individual, at least in a rudimentary form.

The habits which are natural to the species belong to the soul itself: the understanding of principles, for instance, is called a natural habit. It is because of the very nature of his spiritual soul that a human being, once he knows what a whole is and what a part is, knows that every whole is greater than any of its parts; and similarly in other cases. But he cannot know what a whole is or what a part is except by the mental species which he receives from phantasms. Aristotle uses this fact to show that the knowledge of principles comes to us from the senses.⁷¹

We must give a similar explanation of the acquisition of knowledge. For certain seeds of knowledge preexist in us, namely, the first concepts of understanding, which by the light of the agent intellect are immediately known through the species abstracted from sensible things. These are either complex as axioms, or simple, as the notions of being, of the one, and so on, which the understanding grasps immediately. In these general principles however, all the consequences are included as in certain seminal principles, when, therefore, the mind is led from these general notions to actual knowledge of the particular things, which it knew previously in

⁷¹ *ST 1a2ae q51 a1c* Sunt ergo in hominibus aliqui habitus naturales, tamquam partim a natura existentes et partim ab exteriori principio; aliter quidem in apprehensivis potentiis, et aliter in appetitivis. In apprehensivis enim potentiis potest esse habitus naturalis secundum inchoationem, et secundum naturam speciei, et secundum naturam individui.

Secundum quidem naturam speciei ex parte ipsius animae: sicut Intellectus principiorum dicitur esse habitus naturalis. Ex ipsa enim natura animae intellectualis, convenit homini quod statim, cognito quid est totum et quid est pars, cognoscat quod omne totum est majus sua parte: et simile est in ceteris. Sed quid est totum et quid est pars, cognoscere non potest nisi per species intelligibiles a phantasmatis acceptas. Et propter hoc Philosophus ostendit quod cognitio principiorum provenit nobis ex sensu.

The extract mentions habits which belong naturally to individuals. The example Aquinas cites is of one individual being more intelligent than another because of the condition of their sensory organs; his argument is that since the intellect makes use of the sense faculties, those with better sense faculties will be more intelligent. This argument is surely mistaken. Some of the most intelligent and creative people have been or are people with impeded sense faculties, such as blindness and deafness. His point can only be salvaged if we take it to be a statement on the fact that some people are more intelligent than others and that he has chosen to describe this difference in intellectual power in terms of natural habits belonging to individuals. Habits which are natural to the extent that they are not acquired in the way that we acquire for example, habitual knowledge.

general and, as it were, potentially, then one is said to acquire knowledge.⁷² Clearly Aquinas is at pains to defend his realist account of epistemology. From the above quotes this much is clear: we may have a natural habit of grasping first principles, but in order for it to be actualised we require the activity of the agent intellect and the species it abstracts from the *phantasmata*. There is no innate knowledge of common principles. Knowledge of such principles arises from two factors: reality and the natural habit which exists in the intellect. Herein lies the importance of the senses and the activity of the agent intellect: without them there can be no grasp of first principles.

The above remarks notwithstanding, the question has to be asked, prior to the actualising activity of the agent intellect what is the status of this natural habit in the receptive intellect, or to put it rather crudely, is there anything lying dormant, as it were, in the receptive intellect waiting for this illumination? If the knowledge which we express in terms of an axiom is there in some sort of latent fashion then Aquinas is saying little different from what Plato says in the *Meno*. There Socrates argues with Meno that knowledge is not a matter of teaching but recollection. He does this by attempting to show that a slave boy who has never been taught geometry, and is thus apparently ignorant of the basic tenets of geometry, nonetheless has true opinions about geometry within him which can be aroused by questioning and turned into knowledge.⁷³

However, Aquinas is not positing a theory of innate knowledge after the style of Plato. Yes, we do have a natural knowledge of first principles, but this knowledge is very different from that proposed by Plato. This becomes apparent when we recall what Aquinas says about innate knowledge in his account of angelic intellection. The innate knowledge which he speaks of there is different from the account being discussed here. Consider:

The ideas [*species*] by which angels understand are not drawn out of external reality but are intrinsic to their nature.⁷⁴

Angels, unlike humans, have these ideas [*species*] intrinsically. They are created with these ideas already in their intellects. Humans, on the other hand, do not have these species naturally. It is the task of the agent intellect to abstract these species from the sense images in order for the intellect to begin the process of knowing. The human intellect is a *tabula rasa*. It contains no species. The human intellect needs the body, its senses and the activity of the agent intellect in order to generate these species and to acquire knowledge. Obviously then

⁷² DV q11 a1c Similiter etiam dicendum est de scientiae acquisitione quod praeexistunt in nobis quaedam scientiarum semina, scilicet primae conceptiones intellectus, quae statim lumine intellectus agentis cognoscuntur per species a sensibilibus abstractas, sive sint complexa, ut dignitates, sive incompleta, sicut ratio entis, et unius, et huiusmodi, quae statim intellectus apprehendit. Ex istis autem principiis universalibus omnia principia sequuntur, sicut ex quibusdam rationibus seminalibus. Quando ergo ex istis universalibus cognitionibus mens educitur ut actu cognoscat particularia, quae prius in potentia, et quasi in universali cognoscebantur, tunc aliquis dicitur scientiam acquirere.

⁷³ Plato 1983, page 130ff.

⁷⁴ ST 1a q55 a2c Dicendum quod species per quas angeli intelligunt non sunt a rebus acceptae, sed eis connaturales.

the innate modification of the intellect which Aquinas describes as the understanding of principles, prior to the essential activity of the agent intellect in producing species, is not knowledge. We have already seen Aquinas state that in order for us to know the common principles we require the activity of the agent intellect and the existence of mental species. To answer the crude question: there is nothing lying dormant waiting for illumination because prior to the production of mental species there is nothing there to constitute knowledge. What there is, is what Orestes Gonzalez calls an empty natural habit.⁷⁵

This empty natural habit is better described as an innate modification of the receptive intellect which when reduced to act by the activity of the agent intellect enables the intellect to grasp, immediately and intuitively, being, its transcendental properties and common principles without the need for any further intellectual activity. The important point is that in order to grasp them, there must be some contact with external reality. We do not have innate knowledge. The innate modification of the receptive intellect is the sense in which, to use the terminology of the translator of *DV* q11 a1c 'certain seeds of knowledge preexist in us.' Aquinas is saying that the intellect is by its very nature so constituted that it cannot fail to grasp these fundamental notions when confronted with them. Such notions are grasped intuitively and immediately without the need for further investigation.

There is also a less philosophical sense in which we can describe this modification of the intellect as something innate, something natural. This sense clarifies Aquinas' statement that it must be in all men naturally. The grasp of first principles is something which we do intuitively and immediately, it is something which we cannot help doing. Aquinas alludes to this when discussing first principles in Book IV of *In Meta.*:

The third condition is that it [knowledge of first principles] is not acquired by demonstration or any similar method, but comes in a sense by nature to the one having it inasmuch as it is naturally known and not acquired. For first principles become known through the natural light of the agent intellect, and they are not acquired by any process of reasoning but by having their terms known.⁷⁶

It is a habit which Aquinas says belongs to the human species, it is something which we all have *qua* humans, as opposed to some habits which belong merely to individuals.⁷⁷ In short, this habit, this intuitive grasp of being, indemonstrable principles etc., is part of human nature.⁷⁸

Before we go on to look at the alleged foundationalism of the common principles and the

⁷⁵ Gonzalez 1994, page 498.

⁷⁶ *In Meta* IV 6 Tertia conditio est ut non acquiratur per demonstrationem, vel alio simili modo: sed adveniat quasi per naturam habenti ipsum, quasi ut naturaliter cognoscatur, et non per acquisitionem. Ex ipso enim lumine naturali intellectus agentis prima principia fiunt cognita, nec acquiruntur per ratiocinationes, sed solum per hoc quod eorum termini innotescunt.

⁷⁷ *ST* 1a2ae q51 a1c.

⁷⁸ That, of course, doesn't mean that everyone will be able to articulate the common principles.

relationship between them and demonstrative sciences, one outstanding matter must be addressed: MacDonald's description of common principles as known by everyone. Hopefully, the foregoing discussion has shown why and how common principles are known by everyone. As depicted by MacDonald the fact that a proposition was a common principle seemed to be merely a matter of the terms used. The casual way in which he mentions them in his discussion certainly gives the impression that common principles are grasped by everyone because they employ more basic terms. As we have seen the fundamental reason that they are known by everyone and that we cannot think of their contraries is because of the habit of grasping first principles. It is due to this habit, that common principles cannot be denied.⁷⁹

Throughout this discussion of the grasping of first principles there has been an element of foundationalism. Recall, for example:

These naturally known truths are the principles of all subsequent knowledge which is acquired by study, whether it be practical or speculative.⁸⁰

MacDonald, as we saw, tried to depict Aquinas' epistemology as foundationalist. Has he been vindicated? No. The foundationalism of common principles in the epistemic enterprise is linked to the foundationalism which we saw in the previous chapter when we looked at the metaphysical component of perceptual knowledge. In that chapter we ruled out the kind of foundationalism which MacDonald had in mind because all we are doing when we describe being as the archimedean point is describing where the epistemic process begins, the point at which all knowledge has its origins, since all knowledge follows from the intellect's grasp of being. First principles are axiomatic expressions of this grasp of being. The foundationalism of the common principles lies in the fact that they express the simplest of truths, which follow from the grasp of being, not that they provide the foundations from which the whole epistemic edifice is derived. This understanding of the foundationalism of common principles also addresses a concern of Stump. She said that common principles, although common to every science, could not serve as the foundations of a demonstrative science because someone could take a proposition to be a common principle when in fact it wasn't. Given what we have said about the grasping of first principles it is difficult to see how someone could make such a mistake. Difficult, but not impossible. However, even if we allow that such an unlikely mistake could be made, Stump's criticism is irrelevant for two reasons: the foundationalism of common principles is not of the 'Cartesian' kind that Stump has in mind, and even more crucially, common principles while they may be common to every science, do not serve as the principles of demonstrative sciences.

In turning to the relationship between common principles and the demonstrative sciences, we now address the other factor which distinguishes common principles from proper principles. In *lectio* 43 of *In P. A. I* St. Thomas writes:

⁷⁹ *In P. A. I* 19 We outlined above the circumstances in which a common principle may be denied.

⁸⁰ *De Virt* q1 a8c Haec autem naturaliter nota, sunt principia totius cognitionis sequentis, quae per studium acquiruntur: sive sit practica, sive sit speculativa.

He says that there cannot be certain common principles from which alone are syllogized all conclusions, as this common principle, "Of each thing there is affirmation or negation," which is universally true in every genus. Nevertheless, it is impossible that all things be syllogized exclusively from such common principles, because the genera of beings are diverse.⁸¹

Two important points are contained in the above extract: common principles are common to every *scientia*, but not as the principles of each *scientia*. If common principles were the principles of each *scientia*, then all the different *scientiae* would be the same. As he says:

....if the principles are the same, it will follow that everything in the sciences would be the same.⁸²

But, as experience shows not all *scientiae* are the same, different *scientiae* are concerned with different genera. Therefore:

....since diverse sciences are concerned with diverse genera, it follows that the principles of diverse sciences are diverse.⁸³

These principles will contain terms proper to the genus being investigated in the science because the principles of each *scientia* must be proper to it. In fact:

....it is required that the principles of the demonstration belong *per se* to that which is demonstrated.⁸⁴

Only proper principles can serve as the immediate principles of demonstration. The fact that common principles are common to all sciences, but do not serve as proper principles is an important distinguishing feature. This of course, prompts two questions: in what way are such principles common to the various *scientiae*? Is there anything else to the relationship between common and proper principles, aside from the fact that principles of both kinds are true in virtue of themselves?

In answer to the first question St. Thomas says that common principles are used by the different *scientiae* according to analogy.⁸⁵ Take the common principle: 'that if equals be subtracted from equals, the remainders are equal.' No *scientia* can demonstrate from a principle of this kind. Nevertheless, following Aristotle, Aquinas shows how such principles can be used by different *scientiae*:

He [Aristotle] says that "it suffices to accept each of those common ones," so far as it pertains to the generic subject with which the science is concerned. For geometry does this if it takes the above-mentioned common principle not in its generality but

⁸¹ *In P. A. I 43* Et dicit quod non possunt esse aliqua principia communia, ex quibus solum omnia syllogizentur, sicut hoc est principium commune, de quolibet est affirmatio vel negatio; quod quidem communiter est verum in omne genere: non tamen est possibile, quod ex solis aliquibus taliter communibus possint omnia syllogizari: quia genera entium sunt diversa.

⁸² *In P.A. I.43* Si igitur principia sunt eadem sequeretur quod omnia quae sunt in scientiis essent eadem.

⁸³ *ibid.* Unde cum diversae scientiae sint de diversis generibus, sequitur quod diversa principia sint diversarum scientiarum.

⁸⁴ *In P.A. I 17* Idest, oportet quod principia demonstrationis insint per se ei, quod demonstratur.

⁸⁵ *In P. A. I 18.*

only in regard to magnitudes, and arithmetic in regard to numbers. For geometry will then be able to reach its conclusion by saying that if equal magnitudes be taken from equal magnitudes, the remaining magnitudes are equal, just as if it were to say that if equals are taken from equals, the remainders are equal. The same must also be said for numbers.⁸⁶

This example indicates how the same common principle will be used in the diverse *scientiae* of geometry and arithmetic. Using the principle in this way we see what St. Thomas means when he says:

all the sciences share alike in the common principles in the sense that they all use them as items from which they demonstrate--which is to use them as principles. But they do not use them as things about which they demonstrate something, i.e., as subjects, or as things which they demonstrate, i.e., as conclusions.⁸⁷

Arithmetic and geometry will use the same principle but with respect to what is proper to the subject matter of that particular science. The same principle will be used but in different ways, in other words it will be used analogically, as he says, 'proportionate to that science'.⁸⁸

In *lectio* 17 of the first book of *In P. A.*, Aquinas, having shown that it is not enough that demonstration proceed from true and immediate propositions but from propositions proper to the particular *scientia*, goes on to say that it is not the job of a particular *scientia* to prove its own principles. These principles can be proved by principles prior to them. Of these prior principles he writes:

For those prior principles through which the proper principles of the particular sciences can be proved are principles common to all; and the science which considers such common principles is proper to all, i.e., is related to things which are common to all, as those other particular sciences are related to things respectively proper to each. For example, since the subject of arithmetic is number, arithmetic considers

⁸⁶ *In P. A.* I 18 Dicit quod sufficiens est accipere unumquodque istorum communium, quantum pertinet ad genus subiectum, de quo est scientia. Idem enim faciet geometria, si non accipiat praemissum principium commune in sua communitate, sed solus in magnitudinibus, et arithmetica in solis numeris. Ita enim poterit concludere geometria, si dicat: si ab aequalibus magnitudinibus aequales auferas magnitudines, quae remanent sunt aequales; sicut si diceret: si ab aequalibus aequalia demas, quae remanent sunt aequalia. Et similiter dicendum est de numeris.

⁸⁷ *In P. A.* I 20 Omnes scientiae in communibus principiis communicant hoc modo, quod omnes utuntur eis, sicut ex quibus demonstrant, quod est uti eis, ut principiis: sed non utuntur eis, ut de quibus aliquid demonstrant, ut de subiectis, neque sicut quod demonstrant, quasi conclusionibus.

⁸⁸ *In P. A.* I 18 An interesting corollary of this discussion is found in *In P. A.* I 20. There he tells us that no science makes use of the most basic common principle that one should not affirm and deny the same thing. There are two reasons for this: When used of the subject or predicate term of the syllogism "nothing more is verified by stating that man is an animal and is not a non-animal than by merely stating that man is an animal, for the same thing is conveyed by each." Secondly, when used in a middle term, e.g. "man and non-man" it contributes nothing to the conclusion. The other basic common principle that there is either true affirmation or true negation of each thing is only used in *reductio ad absurdum*. Aquinas says "Et dicit quod hoc principium [Est affirmatio vel negatio vera] accipit demonstratio, quae est ad impossibile. In hac enim demonstratione probatur aliquid esse verum per hoc quod eius oppositum est falsum."

things proper to number. In like manner, first philosophy, which considers all principles, has for its subject "being," which is common to all. Therefore, it considers the things proper to being (which are common to all) as proper to itself.⁸⁹

These principles which are prior, common to all and under the remit of metaphysics are clearly common principles. Thus it is by common principles that proper principles can be proved. There may appear to be a hint of foundationalism in this aspect of the relationship between common and proper principles. We have already acknowledged that *scientia* has a foundationalist structure: conclusions are based on better known principles and that such principles may, in turn, be derived from higher sciences, as the principles of optics are derived from geometry. However, Aquinas should not be understood as extending this foundationalism to the extent that common principles constitute the foundations of all knowledge, that, for argument's sake, the law of non contradiction is the indubitable starting point of all that we know, the Thomistic equivalent of the *Cogito*.

Aquinas, in drawing this connection between proper and common principles, is not suggesting that all scientific knowledge can be demonstrated from common principles, that we can argue from the law of non contradiction to the most recondite conclusions of geometry. That would contradict his assertion that common principles are not used in demonstrations. Rather, the foundationalism of common principles lies in their close relationship to our most basic concepts such as being and truth. In fact the foundationalism of common principles is best understood in light of a comparison to terms such as 'being' and 'truth'. Different branches of philosophy, such as epistemology or cosmology, use these terms in their theories. While their theories depend, to an extent, on these terms, it is not the task of these different philosophical disciplines to examine these terms, they merely employ them. It is the task of the highest science, metaphysics to examine these most basic of terms. Like terms, such as 'being', common principles are examined in the highest science, metaphysics. Similarly, just as epistemology depends on notions such as 'truth', it is in this sense that proper principles depend upon common principles. Proper principles employ terms which are species, accidents, genera and so on, but it is not the task of proper principles to make assertions about these basic philosophical categories. These categories are common and used by every *scientia*. Species, accidents and genera are the subject matter of metaphysics; truths concerning them are expressed axiomatically in the common principles. This is the sense in which common principles are prior, or foundational, to proper principles. Common principles provide the conceptual framework for proper principles. Proper principles can be proved in the sense that they can be shown to work within this conceptual framework. This is what Aquinas is referring to, when he says that 'those prior principles through which the proper principles of the particular sciences can be proved are

⁸⁹ *In P. A. I 17* Illa enim priora principia, per quae possent probari singularum scientiarum propria principia, sunt communia principia omnium, et illa scientia, quae considerat huiusmodi principia communia, est propria omnibus, idest ita se habet ad ea, quae sunt communia omnibus, sicut se habent aliae scientiae particulares ad ea, quae sunt propria. Sicut cum subiectum arithmeticae sit numerus, ideo arithmetica considerat ea, quae sunt propria numeri: similiter prima philosophia, quae considerat omnia principia, habet pro subiecto ens, quod est commune ad omnia; et ideo considerat ea, quae sunt propria entis, quae sunt omnibus communia, tanquam propria sibi.

principles common to all'. Having clarified the role of common principles we now turn our attention to proper principles.

ii. Proper principles

At the beginning of this second section of the chapter we outlined the major attributes of *scientia*. We saw that every *scientia* was concerned with three things: a subject, proper principles and the proper attributes of the subject. The object of *scientia* is a conclusion of a demonstrative syllogism in which a proper attribute is predicated of a subject. This predication can be made because the demonstration, as we have stated frequently, draws a connection via a middle term between the subject and the proper attribute. The connection between the subject and proper attribute via the middle term is more than a matter of logic. The middle term gives the cause of a property being a proper attribute of a given subject. For this reason the middle term is an important element in the demonstration:

For it is obvious that a cause is the middle in a demonstration which enables one to know scientifically, because to know scientifically is to know the cause of a thing.⁹⁰

Importantly, the cause of the property being a proper attribute of a subject will be given in terms of the subject's essential nature. Man, for example, is risible because he is rational: his rationality is the cause of his capacity for being risible. So Aquinas writes:

Hence a demonstration will not reach the first cause unless one takes as the middle of demonstration the definition of the subject.⁹¹

Thus the middle term expresses, as Aquinas calls it, the *quod quid est* of the subject.⁹² This *quod quid est* is the reason why the property is a proper attribute,⁹³ and once we know this cause we can also define the proper attribute:

For since the subject is the cause of its proper attribute, it is required that the definition of the proper attribute be demonstrated by the definition of the subject.⁹⁴

Possession of such systematic demonstration is *scientia* because not only are we able to state the cause, we are also able to know the conclusion with certainty because we have inferred it from certain and better known principles: the mild foundationalism of *scientia*. We will begin by making a few preliminary remarks on proper attributes before turning our attention to proper principles. As part of our examination of proper principles we will look in detail at the middle term of the demonstration. This mirrors the importance Aquinas places on it in the

⁹⁰ *In P.A.* II 1 Manifestum est enim quod causa est medium in demonstratione, quae facit scire; quia scire est causam rei cognoscere.

⁹¹ *In P.A.* II 1 Non ergo demonstratio resolvet in primam causam nisi accipiatur ut medium demonstrationis definitio subiecti.

⁹² In other words the middle term tells us what the thing is, it states part of the definiens of the definiendum, the subject. When predicated of the subject the proposition formed is a the definition of the subject. The translation of *In P.A.* which we are using leaves *quod quid est* partially untranslated and refers constantly to 'the *quod quid*'. Having clarified what Aquinas means by *quid quid est* we will use *quod quid est* and amend the quoted material accordingly.

⁹³ *In P.A.* II 17.

⁹⁴ *In P.A.* II 7 Cum enim subiectum sit causa passionis, necesse est quod definitio passionis demonstratur per definitionem subiecti.

process of demonstration. By the end of that we will understand more clearly what *scientia* is and, importantly, its relationship to perceptual knowledge.

Scientia investigates proper attributes.⁹⁵ The investigation of proper attributes will show why a subject has the proper attributes it has. Clearly there is more to the investigation than just forming a demonstrative syllogism, there must be perceptual observation prior to explicitly and systematically expressing that research in terms of a demonstration. This perceptual element is an important part of *scientia*, it underpins the whole enterprise. Unfortunately, as we will see, Aquinas only alludes to it. For example, in *In P. A.* II 7 he reports on a demonstration of Aristotle about thunder which clearly rests on perceptual observation, but makes no mention of the actual perceptual component. However, it should not be taken as surprising that the *In P.A.* has little to say on the perceptual element of *scientia*, the work is after all devoted to an exposition of the demonstrative syllogism.⁹⁶ The aim of *In P. A.* notwithstanding, our analysis intends to show that perceptual knowledge underpins a great deal of what *In P. A.* has to say about *scientia*, in particular the importance of perceptual knowledge in the formation of proper principles and the middle terms of the scientific demonstrations. We will argue that such input in no way undermines the certainty or integrity of *scientia*.

Reading between the lines of what Aquinas writes, it seems that at the outset of an investigation, with respect to the subject whose proper attributes are to be investigated, the scientist knows that the subject exists and what the subject is. But, with respect to the proper attribute he does not actually know that it is a proper attribute of the subject: the demonstration will show this. All the scientist knows is what the name of the proper attribute signifies; that if indeed it is a proper attribute, this is what it is called. Some may object to this statement about the scientist's knowledge of the proper attribute. They will argue that since the scientist who is investigating risibility knows what it is and can cite instances of it, he must know that it exists. Aquinas would maintain that before the scientific investigation and demonstration it is not known if the proper attribute exists. The defence of Aquinas' position is that, for example, a scientist can know what the word 'goatstag' means, an animal which is a combination a goat and a stag, but what *it is*, *the animal*, not just what the word means, can't be answered until he knows that *it* exists. Only when he knows that *it* exists can he investigate *it* scientifically. It is the same with risibility and other proper attributes. Prior to scientific investigation and demonstration the scientist knows what the name of the proper attribute signifies but he doesn't actually know that the proper attribute exists, that there is such a thing as risibility. Only the scientific investigation and demonstration can show this. The instances of risibility which the scientist can cite are evidence pointing to the existence of risibility, evidence which will be employed in the scientific investigation. A corollary of this is that the subject of investigation is better known than the proper attribute, the subject has epistemic priority. Aquinas explains why this is the

⁹⁵ *In P.A.* I 18.

⁹⁶ *Proemium*.

case: the epistemic priority of the subject arises from the its metaphysical priority. Hence: ...in regard to the proper attribute, it is possible to know what it is, because, as is pointed out in the same book, accidents do have some sort of definition. Now the being of a proper attribute and of any accident is being in a subject; and this fact is concluded by the demonstration. Consequently, it is not known beforehand that the proper attribute exists, but only what it is. The subject, too, has a definition; moreover, its being does not depend on the proper attribute--rather its own being is known before one knows the proper attribute to be in it. Consequently, it is necessary to know both what the subject is and that it is, especially since the medium of demonstration is taken from the definition of the subject of the proper attribute.⁹⁷

The scientist's task is to show that it indeed is the case that the subject has such and such a proper attribute and why it has that particular proper attribute. The results of this perceptual procedure are systematically expressed in a demonstrative syllogism using proper principles which are prior to, and better known than the conclusion. Note that the epistemic priority of the subject parallels its metaphysical priority. Depending, as we have seen, on how his remark is interpreted, this may be what MacDonald is alluding to when he speaks of the first principles of demonstration expressing metaphysically immediate facts as well as being epistemically basic.

The perceptual component merely provides the building material for *scientia*. What is perceptually observed must be expressed in terms of proper principles, this is because there can be no scientific knowledge without proper principles.⁹⁸ The immediacy, necessity and universality of the principles ground the certainty of *scientia*. In this analysis of proper principles we are not particularly interested in the fact that the principles must be proximate to a specific science, or that the principles are immediate, necessary and universal. These particular features have been discussed elsewhere and are not in any way contentious. Where necessary reference will be made to them. Rather we are interested in a facet of proper principles that has been overlooked by other commentators: the formation of such principles. Let us take a typical proper principle: 'Man is a rational animal'. This proposition is a definition where the meaning of the subject term is given by the predicate term. It is only by understanding how principles like this are known and formed that we can understand their function in *scientia* and, in turn, obtain deeper insight into the nature of *scientia*. When we look at the formation and knowledge of proper principles we immediately introduce perceptual knowledge into our discussion of *scientia*.

⁹⁷ *In P. A.* I 2 De passione autem potest quidem sciri quid est; quia, ut in eodem libro ostenditur, accidentia quodammodo definitionem habent. Passionis autem esse et cuiuslibet accidentis est inesse subiecto: quod quidem demonstratione concluditur. Non ergo de passione praecognoscitur quia est, sed quid est solum. Subiectum autem et definitionem habet et eius esse a passione non dependet; sed suum esse proprium praetelligitur ipsi esse passionis in eo. Et ideo de subiecto oportet praecognoscere et quid est et quia est: praesertim cum ex definitione subiecti et passionis sumatur medium demonstrationis.

⁹⁸ *In P. A.* II 20.

Aquinas discusses our knowledge of proper principles *In P. A. II 20*. There are two parts to its discussion: the formation of the principles and our knowledge of the principles. We will look briefly at our knowledge of proper principles before paying much closer attention to the formation of the principles.

Obviously to be able to grasp proper principles we must know the meaning of the terms used. This may appear to undermine the indemonstrability of the principles and Aquinas' claim that there⁹⁹ is nothing prior to the principles.

For if it is granted that there are certain principles of demonstrations, it is necessary that they be indemonstrable: for since every demonstration proceeds from things that are prior, as has been established above, then if the principles are demonstrated, it will follow that something would be prior to the principles, and this is contrary to the notion of a principle.⁹⁹

However, the priority of which Aquinas is speaking, is the priority of premises to a conclusion in a piece of reasoning, in the sense that the premises prove what the conclusion states. Our statement about the prior knowledge of the meaning of the terms used does not undermine Aquinas' assertion that there is nothing prior to proper principles. It merely states the common sense fact that we need to know the meaning of the terms used in the proposition before we can grasp it, not that we have preexisting knowledge of the principle. That is impossible because, as Aquinas notes:

...since a principle is an enunciation, there cannot be preexisting knowledge of what it is but only of the fact that it is true.¹⁰⁰

It is by knowing the meaning of the terms that we can see the truth and the indemonstrability of the proposition, in that the principle expresses an immediate fact which does not require proof. The immediacy and indemonstrability of proper principles determines the way in which we know them. Given their particular qualities we grasp them intuitively: our knowledge of them is an instance of understanding:

Moreover, it cannot be through science that we have those principles, because science is the result of reasoning, namely, demonstrative, whose principles are the very things about which we are speaking. Therefore, because nothing can be truer than science and understanding (for wisdom is included in them), what follows from our consideration of the foregoing is that, properly speaking, the knowledge of principles is understanding.¹⁰¹

⁹⁹ *In P.A. I 35* Et quod hoc sequatur ostendit. Posito enim quod sint aliqua principia demonstrationum, necesse est quod illa sint indemonstrabilia; quia cum omnis demonstratio sit ex prioribus, ut supra habitum est, si principia demonstrarentur, sequeretur quod aliquid esset prius principii, quod est contra rationem principii.

¹⁰⁰ *In P. A. I 2* Unde cum principium sit enunciatio quaedam, non potest de ipso praecognosci quid est, sed solum, quia verum est.

¹⁰¹ *In P. A. II 20* Non autem potest esse scientia ipsorum principiorum, quia omnis scientia fit ex aliqua ratiocinatione, scilicet demonstrativa, cuius sunt principia illa de quibus loquimur. Quia igitur nihil potest esse verius quam scientia et intellectus (nam sapientia in his intelligitur) consequens est ex consideratione praemissorum quod principiorum proprie sit intellectus.

No process of reasoning is required to grasp the truth of first principles, they are immediately known.

This intuitive grasp of proper principles sounds very similar to our grasp of common principles which we indicated was a significant factor in distinguishing common principles from proper principles. We should recall however, that while there is a similarity between the grasp of the two kinds of principles, in that both are instances of understanding, in the case of common principles there is a special habit of the intellect, the habit of grasping first principles which predisposes the intellect to grasping such principles. There is no such habit with respect to proper principles. One understands proper principles simply in the way that one understands other immediate things such as, in the case of perceptual knowledge, when in the first act of a properly functioning intellect, we understand that something is there without the need for further proof. Provided one knows the meaning of the terms used one will intuitively grasp the proper principle. If one doesn't know the meaning of the terms, then there will be no intuitive grasp.

Our intuitive grasp of proper principles is not a particularly contentious issue. Contention emerges when we look at the formation of the principles, a contention which has already surfaced in Stump's brief reference to how the principles of *scientia* are formed. Hopefully, we can remove contention from the discussion. We have already seen that in respect of our understanding of principles there is no preexisting knowledge of them. Similarly, with respect to the process of forming indemonstrable principles there is no preexisting knowledge. Aquinas says:

Hence he [Aristotle] concludes that there do not preexist any habits of principles in the sense of being determinate and complete; neither do they come to exist anew from other better known preexisting principles in the way that a scientific habit is generated in us from previously known principles; rather the habits of principles come to exist in us from pre-existing sense.¹⁰²

Our knowledge and the formation of proper principles comes from what we have sensed. Herein lies the relationship between perceptual knowledge and *scientia*: without perceptual knowledge there would be no *scientia* because there would be no principles. MacDonald tried to write off perceptual knowledge as a kind of secondary *scientia*. Here we see quite explicitly that *scientia* depends on perceptual knowledge because like all human knowledge *scientia* finds its ultimate origins in what we sense. St. Thomas outlines Aristotle's thoughts on the process:

Then he [Aristotle] shows, in view of the foregoing, how the knowledge of first principles comes about in us; and he concludes from the foregoing that from sensing comes remembrance in those animals in which a sensible impression remains, as has been stated above. But *from remembrance many times repeated in regard to the same*

¹⁰² *In P. A. II 20* Unde concludit quod neque praeexistunt in nobis habitus principiorum, quasi determinati et completi: neque etiam fiunt de novo ab aliquibus notioribus habitibus praeexistentibus, sicut generatur in nobis habitus scientiae ex praecognitione principiorum; sed habitus principiorum fiunt in nobis a sensu praeexistente.

item but in diverse singulars arises experience, because experience seems to be nothing else than to take something from many things retained in the memory. 103

[My emphasis]

He goes on:

that just as from memory is formed experience, so from experience or even from the universal resting in the mind..... the principle of art and science is formed in the mind.¹⁰⁴

From perception universals are formed. The terms which we use to refer to these universals are the terms from which the proper principles of *scientia* are formed. These universal terms must be placed in the proper order, that is, arranged in such a way that they constitute a definition. This is the sense in which proper principles depend on perceptual knowledge. This is what Aquinas means when he says 'from the universal resting in the mind the principle of art and science is formed.'

We will use the example of human rationality and risibility to illustrate the formation of proper principles. Perceptual observation indicates that people have the ability to see something as funny. The demonstration is the scientist's explanation why this is the case. The scientist will also be able to explain what risibility is by showing how it differs from other *per se* attributes which arise from humans' rationality such as the ability to use language. The demonstration will contain three terms: the subject of the demonstration, in this case man; a proper attribute, risibility; and a middle term, rationality. The formation of two of the terms is relatively straightforward. The universal employed as the subject of the demonstration is formed in the way that any universal is formed. This is something which we discussed in the last chapter. So too the universal used to signify the proper attribute. Experience shows that different individuals appear to have this property, the ability to see something as funny. From this experience and by the intellect's ability to abstract the universal from the singular the scientist is able to consider the property separately from particular instances, he forms a universal concept which signifies this putative property. This is the thrust of Aquinas' remark when he says 'from remembrance many times repeated in regard to the same item but in diverse singulars arises experience, because experience seems to be nothing else than to take something from many things retained in the memory.' The universality of *scientia* partially rests on the universality of these terms.

The subject and the proper attribute constitute the two extremes of the syllogism and are

¹⁰³ *In P.A. II 20* Deinde cum dicit: ex sensu quidem igitur etc., ostendit secundum praedicta quomodo in nobis fiat cognitio primorum principiorum, et concludit ex praemissis quod ex sensu fit memoria in illis animalibus, in quibus remanet impressio sensibilis, sicut supra dictum est. Ex memoria autem multoties facta circa eandem rem, in diversis tamen singularibus, fit experimentum: quia experimentum nihil aliud esse videtur quam accipere aliquid ex multis in memoria retentis.

¹⁰⁴ Quod sicut ex memoria fit experimentum, ita etiam ex experimento, aut etiam ulterius ex universali quiescente in anima..... ex hoc igitur experimento, et ex tali universali per experimentum accepto, est in anima id quod est principium artis et scientiae.

I have omitted a large section in parenthesis which is found in the text, but that doesn't account for the fact that the translation does not correspond to what the original text says.

connected via a middle term. Predicating the middle term of the subject gives a definition of the subject. This is because the middle term is a statement which, we have seen, signifies what Aquinas calls the *quod quid est* of the subject. By the *quod quid est* Aquinas means the essential nature of the subject:

For the *quod quid est* of a thing must signify its essence.¹⁰⁵

The formation of this term, the middle term, is more complicated than the formation of the other two terms. As in the case of the other two terms of the demonstration, perceptual knowledge is important in constructing the middle term. We saw that in case of the other two universal terms of the demonstration, their formation was a matter of abstracting from experience: the universal concept 'man' was formed from consideration of individual men, and the universal concept 'risibility' formed to describe a property which individual men seemed to possess. The middle term will also be universal, but in order to acquire this universal some research needs to be done. The construction of the middle term is not simply a matter of abstracting from our experience. Rather it emerges from a careful examination of the subject of the demonstration. So important is the formation of the middle term that Aquinas devotes most of the second book of the *Commentary on the Posterior Analytics* to it.

The middle term will state the *quod quid est* of the subject. As it states the *quod quid est*, it is predicated universally and necessarily of the subject.¹⁰⁶ A hint as to what the *quod quid est* will look like is given in the following remark which occurs in several places in the second book of *In P. A.*:

....there is no more in a definition than genus and differences, and that it is possible for a definition to be formed of two things, one of which is a genus and the other a difference.¹⁰⁷

The *quod quid est*, the predicate term of the definition, will consist of a genus and a difference, for example, animal and rational. This genus and difference will state the essence of the subject. Much of the early part of Aquinas' discussion of the middle term is devoted to showing in what ways the middle term, this statement of essence, is not obtained. Most importantly, it is not obtained by demonstration. The first twelve *lectiones* of *In P. A. II* offer detailed, and sometimes esoteric argument on this matter, details of which need not detain us. The core reason, worth noting, for the inability to demonstrate the *quod quid est* is as follows:

....there does not seem to be any possible way for a person to demonstrate that some *quod quid est* is man: and this because whoever knows a *quod quid est* to be

¹⁰⁵ *In P. A. II 13* Huius rationem necesse est significare quod quid est rei.

¹⁰⁶ *In P. A. II 13*.

¹⁰⁷ *In P. A. II 13* Nihil est aliud in definitione quam genus et differentiae, et quod possibile est definitionem ex duobus constitui, quorum unum sit genus, aliud differentia.

See also *In P. A. II 5*.

of man or of any other thing is required to know that the thing exists.¹⁰⁸

To know the essence of a thing, as opposed to what the name of the thing signifies, one must know that the thing exists. However, knowing something by demonstration does not mean that the thing which is demonstrated exists. Demonstration does not lead to knowledge of a thing's existence.¹⁰⁹ Therefore, we cannot acquire knowledge of the *quod quid est* of a thing by means of a demonstration. Given that the subject and the *quod quid est* together are going to constitute an indemonstrable principle this must be good news; it is difficult to see how something indemonstrable could be logically demonstrated.

For similar reasons, regarding knowledge of essence entailing knowledge that the thing exists, we cannot simply state a definition and say that this gives knowledge of *quod quid est*. He uses an example to make his point:

Wherefore he [Aristotle] says that it is clear not only in the light of the foregoing but also in view of the modes of terms, i.e., of definitions, which are presently in vogue that those who define do not manifest the *quia est*. For example, one who defines a circle as something all the lines from whose centre to the circumference are equal, is still left with the question why there must be such a thing as he has defined, i.e., why it is necessary to posit that there exists such a thing as was defined; for example, why it is required to posit that there is a circle which is defined in the way mentioned. For it is acceptable to give a like description of a brass mountain by saying, for example, that it is a brass body which is lofty and extensive; but the task would still remain to establish whether there is such a thing in nature. And this because terms, i.e., defining notions, do not state that their counterpart either exists or is capable of existing; rather, whenever such a notion is formulated, it is legitimate to ask why such a thing should exist.¹¹⁰

Definitions and demonstrations do not tell us that something is or why it is, they only tell us what something is. The thrust of Aquinas' argument seems to be that the *quod quid est* must be obtained by perceptual means. By our perceptual research we know that the thing is; only

¹⁰⁸ *In P. A. II 6* Non videtur esse possibilis aliquis modus, quo aliquis demonstrat quod quid est esse hominis; et hoc ideo, quia necesse est quod quicumque scit quod quid est esse hominis, vel cuiuscunque alterius rei, quid sciat rem illam esse.

¹⁰⁹ This may appear to contradict our earlier point that we come to know that the proper attribute exists via scientific demonstration. In fact it does not. When we discussed the matter of the proper attribute's existence we stressed the importance of scientific investigation. Demonstration provides the logical and systematic framework for what has been empirically discovered, viz. that the proper attribute exists and belongs to subjects of this kind.

¹¹⁰ *In P. A. II 6* Unde dicit manifestum esse non solum secundum praedicta, sed etiam secundum modos terminorum, idest definitionum, quae nunc sunt in usu, quod illi qui definiunt, non manifestant quia est. Puta qui definit circulum, dicens quod est aliquid ex cuius medio lineae ad circumferentiam ductae sunt aequales, adhuc restat quaestio propter quid oporteat poni esse id quod definitur; puta propter quid oporteat poni quod sit circulus, qui praedicto modo definitur. Convenit enim aliquam similem rationem dicere montis aenei, puta quod est corpus aenum in altum et usquequaque diffusam; et tamen adhuc restat quaerere an sit aliquid tale in rerum natura. Et hoc ideo quia termini, idest rationes definitivae, non declarant quod illud de quo assignantur, aut sit aut possibile, sit esse, sed semper, assignata tali ratione, licit quaerere quare oporteat tale aliquid esse.

then can we state what the thing is, and, on the basis of this, why the thing has the proper attributes it has. In short, the *quod quid est* cannot be obtained by logic or human intuition alone. That is not to say that logic is completely unhelpful; Aquinas devotes a *lectio* to showing how logic and demonstration can help in manifesting a *quod quid est*. This discussion centres on the role of *quod quid est* serving as a the middle term in a *propter quid* demonstration, but this is more an incidental manifestation of an already known *quod quid est* rather than the demonstration of a *quod quid est* which was hitherto unknown.¹¹¹

Discovery of a *quod quid est* demands, as we will see, a perceptual process. Before we look at that perceptual process we must mention one other excluded means of finding the *quod quid est*: induction. Aquinas writes:

However, besides these three modes [this refers to various aspects of demonstration] there is a fourth, namely, through induction. But it turns out that the *quod quid est* cannot be proved by manifest singulars, namely, in such a way that something is predicated of all and is not anything that might be otherwise: because one who thus proceeds by induction will not demonstrate the *quod quid est* but will demonstrate that something is or is not; for example, that every man is an animal, or that no animal is a stone.¹¹²

This is an interesting statement about induction. We will argue that, this statement notwithstanding, there has to be an element of induction in the formation of the principles. That induction, however, takes place after the *quod quid est* has been identified and is not employed in the determination of the *quod quid est* which is the very issue Aquinas is ruling out here. Induction is ruled out as a method because it does not lead to an identification of the *quod quid est*, it can only use the *quod quid est* as part of a generalisation. The *quod quid est* of a subject must be acquired by another way.

In fact there are two ways in which the *quod quid est* can be obtained, both of which have the perceptual dimension which demonstration and definition lack. The first way is by dividing the genus,¹¹³ the other way is by examining things similar and dissimilar to the thing whose *quod quid est* is sought.¹¹⁴ Both processes are straight forward. In the first case the scientist must identify a genus. Once identified, he then seeks to identify what makes one species different from another by searching for the very qualities which make them different species:

¹¹¹ *In P. A.* II 7.

¹¹² *In P. A.* II 5 Relinquitur autem praeter tres modos quartus modus, qui est per Inductionem. Sed nec contingit probare quod quid est per singularia manifesta, ita scilicet quod aliquid praedicetur de omnibus, et non sit aliquid eorum quod aliter se habeat; qui sic Inducendo non demonstrabit quod quid est, sed demonstrabit aliquid esse vel non esse, puta quod omnis homo est animal, vel nullus homo est lapis.

The translation used above incorrectly translates the last sentence. It should read "or no man is a stone."

¹¹³ *In P. A.* II 14.

¹¹⁴ *In P. A.* II 16.

..... when someone wishes to deal with some whole, i.e., a universal, in order to define it, it is recommended that he first divide the genus into the first parts of that genus, i.e., those that are not further divisible into species; for example, he should divide number into two and three. Having accomplished this division through which the genus is known, he should then try to obtain the definition of each species as is done in other matters, say in the matter of straight line and circle and right angle. For all these are fittingly defined after one has divided the genus.¹¹⁵

The next *lectio* details the rules which must be followed:

.....in order to achieve a term, i.e., a definition, by the method of division three things must be observed: first, that the things which are taken be predicated in *quod quid est*; secondly, that they be arranged according to what is first and what is second; thirdly, that everything taken pertain to the *quod quid est* and that nothing be omitted.¹¹⁶

The meaning of the first rule is clear, we identify a genus and a difference which will be used in the *quod quid est*. Aquinas outlines the second rule:

And he [Aristotle] says that the parts of a definition are arranged as they should, if one takes what is first--and he will do this, if he first takes that which is implied by the other things that are taken later, and not conversely. For this is more common and prior. But such a thing must be taken in the definition as a genus, as when it is stated that man is an animal, two-legged and walking. For if he is a two-legged walker, he is an animal; but not vice versa. Therefore, when I have taken animal as first, the same method must be observed in arranging the other items. For the second item to be employed in the definition will be that which according to the foregoing description will be first among all the others; likewise, the third item to be taken will be that which is first in respect of the items had, i.e., following. For it will always turn out that when the more general item has been removed, that which is had, i.e., that which immediately follows, will be true in regard to all the other items,

¹¹⁵ *In P. A. II 14* Dicit ergo primum quod cum aliquis vult negotiari, ad definiendum, aliquid totum, idest universale, congruum est ut primo dividat genus in primas partes illius generis, quae sunt indivisibiles secundum speciem puta quod dividat numerum binarium et ternarium: et hac divisione praemissa, per quam cognoscitur genus, tenet postea accipere definitionem singularum specierum; sicut etiam fit in aliis, puta in recta linea et in circulo et in recto angulo. Omnia enim haec congrue definiuntur, praemissa divisione generis.

¹¹⁶ *In P. A. II 15* Dicit ergo primo quod ad hoc quod aliquis consituat terminum, idest definitionem, per viam divisionis, tria oportet considerare: quorum primum est, ut ea quae accipiuntur, praedicentur in eo quod quid est; secundum est, ut ordinetur quid sit primum et quid secundum; tertium est, quod accipiantur omnia quae pertinent ad quod quid est, et nihil eorum praetermittatur.

say a fourth and a fifth, if that many parts are needed for the definition.¹¹⁷

This rule could have been concisely paraphrased. However, it contains a point which will be of importance shortly. The third rule to be observed ensures that the definition is as accurate as possible by ensuring that all the differences have been noted. Succinctly, in this process of dividing the genus we take the genus and then divide by its differences; then we divide the difference by the differences which follow from it and so on until we reach the ultimate difference. All these differences together with the genus constitute the *quod quid est*. Man, for example, can be defined as a two-legged, walking animal. Therefore, in identifying the differentiae which follow from other differentiae we are constructing something of a porphyrian tree; each branch of which, on the way to the ultimate differentia, cites differentiae which will be used in the definition.

Aquinas tells us how we investigate the differences:

- investigate the differences by considering the proper attributes which, as has been said, are signs manifesting the forms proper to the species. And this should first be done by means of certain common items.¹¹⁸

By these means the scientist obtains the *quod quid est* of man: man is an animal, and the difference which sets him apart from other animals, which manifests his form, is his rationality. In the second method the scientist examines things similar and dissimilar to the subject whose *quod quid est* is sought. He describes what is involved:

..... in those things which are similar, one should consider some item that is the same in all; for example, what is found to be the same in all men is that they all coincide in being rational. After that, one should investigate the things which agree with the first things in genus and are specifically the same among themselves, although specifically different from the things first taken, as horses from men. It is also necessary to investigate what is the same in these things, namely, these horses;

¹¹⁷ *In P. A. II 15* Et dicit quod tunc ordinantur partes definitionis sicut oportet, si aliquis primo accipiat id quod est primum; et hoc erit si aliquis primo accipiat id quod consequitur ad alia posterius accepta, et non e converso. Hoc enim est communis et prius. Necesse est autem aliquid huiusmodi accipi in definitione tanquam genus, puta cum dicitur quod homo est animal gressibile bipes. Si enim est gressibile bipes, est animal, sed non e converso. Cum ergo iam acciperimus animal tanquam primum, idem modus observandus est in ordinatione inferiorum. Accipietur enim quasi secundum in definitione illud quod secundum rationem praemissam erit primum inter omnia sequentia; et similiter accipietur tertium id quod est primum respectu habitorum, id est consequentium. Semper enim, remoto superiori, illud quod est habitum, id est immediate consequens, erit primum omnium aliorum. Et ita est etiam in omnibus aliis, puta in quarto et in quinto, si tot oporteat partes definitionis esse.

¹¹⁸ *In P. A. II 14* Oportet ad investigandum differentias considerare proprias passiones, quae, sicut dictum est, sunt signa manifestantia formas proprias specierum. Et hoc oportet primum facere per aliqua communia.

say neighing.¹¹⁹

Having identified how these two subjects, men and horses, differ the scientist must then seek whether there is anything in common between rationality and neighing. If there is, this will constitute the common form of the two things and be given in the definition of the thing. If there is no common element, then both things will have different definitions, definitions which state the genus in which they share and the manner in which they differ. Man is a rational animal because all men are animals, but their rationality sets them apart from other animals. Horses are neighing animals, because it is the ability to neigh which sets them apart from cows and sheep.

Several remarks ought to be made about these methods. First, they are perceptual. The research in question is clearly an example of perceptual knowledge. It is by looking at things that one comes to obtain the *quod quid est*, a *quod quid est* which will be part of an indemonstrable principle of *scientia*. This is the relationship between perceptual knowledge and *scientia*, the terms from which the principles are formed are perceptually obtained. *Scientia* relies on perceptual knowledge for the formation of its principles. Some might see this perceptual element as undermining the indemonstrability of the principles. We do not. The indemonstrability of the principles is a matter of logic, it has nothing to do with the fact that the principles are perceptually derived. They are indemonstrable because their truth is not grasped by syllogising but because of the meaning of the terms they contain:

But those immediate principles are not made known through an additional middle but through an understanding of their own terms.¹²⁰

These indemonstrable principles are definitions which are necessarily true. The necessary truth of these principles and the role of empirical research in their construction can be seen in a comparison with modern science. In science today we find definitions such as 'water is H₂O', 'an acid is a proton donor'. Once we know the meaning of the terms used we grasp immediately the truth of these propositions. Nonetheless, that water is H₂O, once had to be empirically obtained. This empirical dimension in no way undermines the necessary truth that 'water is H₂O'. If something is not H₂O then it is not water. If it is H₂O then necessarily it is water.¹²¹ In a similar vein the role of perceptual knowledge in the formation of proper principles does not undermine either the indemonstrability or the necessity of the principles. In the case of the definitions from modern science, scientists can then go on to explain why acid or water behave in the way which they do. So, for example, since acid is a

¹¹⁹ *In P. A. II 16* Ostendit subdens quod primo oportet similia considerare quid Idem In omnibus inveniatur: puta quid Idem inveniatur in omnibus hominibus, qui omnes conveniunt in hoc quod est esse rationale. Postea considerandum est iterum in aliis, quae conveniunt cum primis in eodem genero, et sunt sibi invicem idem specie, sunt autem altera specie ab illis, quae primo accipiebantur, sicut equi ab hominibus: oportet etiam accipere quid sit Idem in his, scilicet equis puta hinnibile.

¹²⁰ *In P. A. I 7* Ipsa autem principia immediata non per aliquod medium extrinsecum cognoscuntur, sed per cognitionem proporum terminorum.

¹²¹ Later, when we look at the role of induction in the construction of principles we'll recall what Putnam has to say on statements such as 'water is H₂O'.

proton donor hydrochloric acid will react with sodium hydroxide to produce salt and water. Clearly, other factors besides the acid's tendency to donate protons are important, but nonetheless here we see how a definition can be used to give a broad explanation of why something happened. Aquinas sees indemonstrable principles as playing a similar role, they explain why the object has the proper attributes it has. We will return to that explanatory role later. First some further comments about the methods employed in obtaining proper principles.

In the first method when discussing how one arrives at the specific difference, Aquinas emphasises the importance of proper attributes in this process. This appears problematic; after all, which proper attributes does one choose? Isn't there a danger of circularity, using proper attributes to define the *quod quid est* which in turn will be used to verify that a certain property is a proper attribute? A hint at one possible resolution of this apparent circularity may lie in *In P.A. II 7*.

But there is the further consideration that since the *quid est* is the cause of the very being of the thing; then according to the diverse causes of one thing; there are various ways of assigning the *quod quid est* of the same thing. For example, the *quod quid est* of house can be formulated in terms of its material cause, so that we might say that it is something composed of wood and stones; and also in terms of the final cause, namely, that it is an artifact constructed for habitation. Thus, therefore, it will occur that since there are several *quod quid est* of the same thing, one of them will be demonstrated and another not demonstrated but supposed. Hence it does not follow that there is a begging of the question, because one *quod quid est* is supposed and the other proved. Nor is this a method proving the *quod quid est* demonstratively, but of syllogizing it logically, because by this method it is not sufficiently proved that what is concluded is the *quod quid est* of the thing of which it is concluded, but merely that it is in it.¹²²

Given that each subject will have material, efficient, formal and final causes, it is possible to state the *quod quid est* in a variety of ways. On the basis of this multiplicity of *quod quid est*, we could argue that we can prove that a particular property is a proper attribute of a subject by using a *quod quid est* which doesn't presuppose the proper attribute in question, but is derived from another proper attribute. This method, however, is unsatisfactory, not least because Aquinas himself is unsatisfied with it as a method of acquiring a *quod quid est*

¹²² *In P. A. II 7* Est autem considerandum quod, cum quid est sit causa ipsius esse rei, secundum diversas causas eiusdem rei potest multipliciter quod quid est eiusdem rei assignari. Puta quod est domus potest accipi per comparisonem ad causam materialem, ut dicamus quod est aliquid compositum ex lignis et lapidibus; et etiam per comparisonem ad causam finalem, ut dicamus quod est artificium preparatum ad habitandum. Sic ergo continget quod, cum sint multa quod quid est eiusdem rei, aliquod illorum monstrabitur, et aliquod non monstrabitur, sed supponetur. Unde non sequitur quod sit petitio principii, quia aliud quod quid est supponitur, et aliud probatur. Nec tamen est modus logice syllogizandi; quia non sufficienter per hoc probatur quod id quod concluditur sit quod quid est illius rei de qua concluditur, sed solum quod insit ei.

In this quotation the translator merely follows Aquinas in jumping between *quid est* and *quod quid est* as the technical phrase for the thing's essence.

est. Furthermore, how do we know that the proper attribute is not presupposed? Finally, one major criticism tells against the whole process of using proper attributes to investigate specific differences, not just this attempted resolution. Prior to the demonstration we do not actually know if the proper attribute exists; we only know what its name signifies. Since this is the case, how can we use a proper attribute which we don't know exists, to identify a difference that we know exists, and which will be used in an essential definition, as for example, 'two-legged' in 'man is a two-legged walking animal'? Given these difficulties this attempted resolution must be ruled out. The value of what the above extract states lies in the connection which it draws between essential definitions and causal explanations, not in solving the apparent circularity of Aquinas' position.

Unsurprisingly, Aquinas is aware of the circularity problem. He alludes to it in *In P. A. II* 13:

But because the essential forms are not known to us *per se*, they must be disclosed through certain accidents which are signs of that form, as is stated in *Metaphysics* VIII. However, one should not take the proper accidents of that species, because they are the ones that will be demonstrated by the definition of the species; rather the form of the species must be made known by certain accidents that are more common. Hence according to this, the differences which are used are indeed called substantial, inasmuch as they are adduced in order to declare the essential form; but they are more common than the species, inasmuch as they are taken from signs which follow upon higher genera. ¹²³

The key to avoiding the charge of circularity lies in the phrase, 'the form of the species must be made known by certain accidents that are more common'. A similar phrase is found in the extract from *In P. A. II* 14: where he says that we can use proper attributes, but begin with 'certain common items.'

An understanding of this phrase and the method which Aquinas has in mind is best obtained by considering the example which he uses in *lectio* 13. This *lectio* is devoted to illustrating the characteristics which should be present in the items which are used in definitions. As part of this illustration he outlines how one would obtain the *quod quid est* of the number three. It should be noted that Aquinas sees numbers such as one, two, three and so on, as distinct species of the genus of number. Thus, two is a different species from three. To obtain the *quod quid est* of three, as one would obtain any *quod quid est*, we begin by dividing the genus and taking accidents that are applicable to the subject and *other species* of the same genus. We obtain the *quod quid est* of a species by using attributes common to different

¹²³ *In P. A. II* 13 Sed quia formae essentiales non sunt nobis per se notae oportet quod manifestentur per aliqua accidentia, quae sunt signa illius formae, ut patet in *Meta* VII. Non autem oportet accipere accidentia propria illius speciei, quia talia oportet per definitionem speciei demonstrari; sed oportet notificari formam speciei per aliqua accidentia communiora: et secundum hoc differentiae assumptae dicuntur quidem substantiales, in quantum inducuntur ad declarandum formam essentialem, sunt autem communiores speciei, in quantum assumuntur ex aliquibus signis, quae consequuntur superiora genera.

species of the same genus. In this case we take items which are applicable to three and to other numbers. He outlines what is involved:

He [Aristotle] says therefore first that in order to manifest the *quod quid est*, we must take items which are both always and applicable to more (but not outside the genus), until the term is reached. And they should be so selected that each item when first taken should be applicable to more, but when all are taken together the combination does not apply to more, but is converted with the thing whose *quod quid est* is sought. For the *quod quid est* of a thing must signify its essence.¹²⁴

In the case of three the items taken are: number (the genus), odd and both senses of prime. One sense of prime means a number which is divisible by no other number except one; the other sense means numbers which are not composed of other numbers.¹²⁵ Aquinas says that these items can be predicated of every three but they can also be predicated of other numbers; five is odd for example, seven is prime in the first sense of the word and so on. When taken together however, these items signify the *quod quid est* of three because they describe what sets three apart from other numbers. Three is a number which is odd and prime in both senses. Two, in contrast, is a number which is even and prime in both senses: This is how the form of the species is made known by accidents that are more common. We don't actually, as he suggested in *In P. A. II 14* investigate the differences by examining the proper attributes of the subject. Rather since the essential form is not known to us *per se*, we use accidents common to several species within the genus, 'signs which follow upon higher genera' to reach a definition of the essence of the subject.

This procedure underpins both means of obtaining the *quod quid est*. It is clearly apparent in the second rule of investigating the *quod quid est* by dividing the genus. There the scientist begins by considering what is most common and prior; in the example used, animal, then what is most common and prior of the other accidents must be listed, in this case, two legged, then what is first in respect of the other items is taken, walking and so on. This use of common accidents and the manner in which they are arranged in the phrase which indicates the *quod quid est* avoids any danger of circularity. It is possible to acquire the *quod quid est* without recourse to an investigation of proper attributes. This *quod quid est* is predicated universally and necessarily of the species: so, for example, all humans are rational animals. This is where induction is important in the formation of principles. Some, like

¹²⁴ *In P. A. II 13* Dicit ergo primo quod ad manifestandum quod quid est accipienda sunt talia, quae quidem sunt semper et in plus, non tamen extra genus, usque ad talem terminum, ut primo quidem unumquodque quod accipitur sit in plus, omnia autem non sint in plus, sed convertantur cum re, cuius quaeritur quod quid est. Huius enim rationem necesse est significare quod quid est rei.

¹²⁵ This second sense of prime requires clarification. Aquinas describes it as follows:

"In another way a number is called prime because it is not composed of other numbers, as opposed to seven, which is prime in the first way, because it is not divided by any other number except one, but is not prime in the second way, for it is composed of three and four. Three, however, is not composed of several numbers, but only of the number two, and one."

In P.A. II 13. Alio modo dicitur aliquis numerus primus, quia non componitur ex pluribus numeris; sicut patet per oppositum de septenario, qui primo modo est primus, non enim mensuratur nisi unitate; non autem est primus secundo modo, componitur enim ex ternario et quaternario: sed ternarius non componitur ex pluribus numeris, sed ex sola dualitate et unitate.

Stump, may see this as undermining the certainty of the principles. What if, as Goodman's riddle suggests, the future may not be like the past? What if we come across a man who is not rational? Doesn't this undermine the necessity of our proper principles and the necessity and certainty of *scientia* which follow from it? The structure and very purpose of the principles as essential definitions rules this possibility out. It is impossible to come across a man who is not rational, in the same way that it is impossible to discover a triangle which is not three sided. If it is not three sided it cannot be a triangle, if it is not rational it is not human, or to paraphrase Putnam, if it is not H₂O, it is not water.¹²⁶ In short, with respect to indemonstrable principles like 'man is a rational animal' there is no problem of induction.

It is on the basis of universal and necessary principles that scientific demonstration takes place. This analysis has sought to emphasise the perceptual basis of these principles. We will draw conclusions from our analysis of principles shortly. Prior to that we need to address two outstanding issues concerning the formation of principles.

The first concerns the emphasis we have placed on the role of perceptual knowledge in the formation of principles. Several times in the earlier part of this chapter we stated that the principles of some demonstrations are in fact the conclusions of other demonstrations. We showed, for example, how the conclusion of a higher science, such as geometry, can be used as principles in a lower science, such as optics. As part of this discussion we also restated Aquinas' belief that no science demonstrates its own principles, such principles are demonstrated by a higher science. How does our account of the formation of indemonstrable principles square with this? Are all principles formed in the way we suggest?

Clearly, some principles will not actually be formed in the way which we suggest. Some principles will be derived from other principles and it is on the basis of this derivation that we assent to them. However, the assorted derivations notwithstanding, there will be input from perception at some point. Recall, that even the most basic of principles, the common principles, require an input from perception in order to be grasped. Still other principles will not be formed in the way we suggest, but be assented to on the authority of experts. For example, if we take the definition of a square as a proper principle: 'a square is a plane figure having four equal sides and four right angles'. Nobody is now going to form this definition or search for the *quod quid est* of 'square' by the method which we outlined above. We do not need to do it. It has already been done for us. In fact, in many instances of *scientia* we will be assenting to, rather than forming, principles. Nonetheless, this does not undermine the importance which we have placed on perceptual knowledge in the formation of principles. As science develops, new principles will be formed either by the methods

¹²⁶ Putnam writes: "In fact, once we have discovered the nature of water, nothing counts as a possible world in which water doesn't have that nature. Once we have discovered that water (in the actual world) is H₂O, *nothing counts as possible world in which water isn't H₂O*. In particular, if a 'logically possible' statement is one that holds in some logically possible world, *it isn't logically possible that water isn't H₂O*." [Author's emphasis] Putnam 1975, page 233

outlined by Aquinas in *In P. A.* II 14 and 16 or, in some instances, by means of demonstrations. For the natural scientist engaged in *scientia*, the methods outlined in *In P. A.* II 14 and 16 will be particularly important, as it is always possible that previously unknown species will be discovered. In these instances the scientist must determine the genus to which the species belongs and what constitutes its specific difference in order to acquire its *quod quid est*.

The second issue concerns the premise of the syllogism which contains the *quod quid est* and the proper attribute. As we have stated frequently, the *quod quid est* is the syllogism's middle term. At the beginning of the second book of *In P. A.* Aquinas reminds us why we use a middle term:

.....the middle in demonstrations is employed in order to make known something about which there might have been doubt or question.¹²⁷

In a natural science we are seeking to show that a proper attribute does indeed belong *per se* to a given subject and in showing this offer a causal explanation of the proper attribute; just as modern science, knowing that acids are proton donors, seeks to explain why acids behave as they do. Thus, the middle term has an important explanatory role; it gives the reason why the subject has this proper attribute. In the minor premise the middle term, the *quod quid est* is predicated of the subject. In the major premise the proper attribute is predicated of the *quod quid est*. Herein lies the importance of the *quod quid est* as the middle term through which the proper attribute is able to be predicated of the subject in the conclusion.¹²⁸ The conclusion makes explicit the connection between the subject and predicate implicitly contained in the premises. The conclusion states that the subject does indeed have this property. The demonstration shows why the subject has this property, i.e. that as a thing with such and such an essence, such a *quod quid est*, it will have this proper attribute.

So far in this discussion we have shown how the *quod quid est* is predicated of the subject of demonstration, but, we have said nothing about how the major premise is formed. We must now consider how the connection is made between the proper attribute and the *quod quid est* which allows the former to be predicated of the latter. This is a complex matter, not helped by the fact that Aquinas says very little directly about the formation of the major premise. He spends most of the second book of *In P. A.* discussing how the *quod quid est* is obtained. Then devotes attention to a discussion of the investigation of *propter quid* in special circumstances and the relationship between a cause and an effect, rather than systematically dealing with the formation of the major premise.¹²⁹ What little material there is on the formation of the major premise must be extricated from these discussions on

¹²⁷ *In P. A.* II 1 Quia vero medium in demonstrationibus assumitur ad aliquid innotescendum de quo poterat esse dubitatio vel quaestio.

¹²⁸ Schematically: all M are P, all S are M, therefore, all S are P. Where M is the middle term, S is the subject and P is the predicate. Recall that for our purposes we are only interested in the syllogism known as Barbara

¹²⁹ *In P. A.* II 17-19.

propter quid and the relationship between a cause and effect. Given Aquinas' own reticence on the topic, we intend to offer no more than a sketch of what the formation of the major premise may be like.

Firstly, it ought not to be surprising that material on the formation of the major premise is bound up with discussions on *propter quid* and the relationship between a cause and an effect. After all, in formulating the major premise we are seeking to explicate a connection between an effect, a proper attribute, and its cause, the *quod quid est*. A premise, which in the context of demonstration, allows us to state the reason why, *propter quid*, a subject has this proper attribute. How then might the scientist go about forming the major premise, making the connection between the *quod quid est* and the proper attribute?

The first thing which we must note is that the question *propter quid*, the question why is this the case?, is closely connected to the question *quid est*, the question what is it?

For if one asks what is a chord, the answer is given that it is a numerical ratio according to high and low notes. Again, if one asks why a high note and a low note are concordant, the answer is given that it is because the high note and the low note have a numerical ratio. And so the question what is it and the question why reduce to the same thing subjectively, although they differ in formality.¹³⁰

Thus, in possessing the middle term, the *quod quid est*, we possess the answer to *propter quid*. In possessing the *quod quid est* we possess the information necessary for offering an explanation of why this thing has this proper attribute because we possess the reason why a given property may be a proper attribute. It is the scientist's task to show the connection between the thing's essence and the property in question. The scientist cannot simply do this by making, what we might term, a conceptual connection, that, for example, humans' rationality gives them the proper attribute of risibility. The scientist must reach this conclusion by using perceptual methods similar to, and for the same reasons as, those used in the formation of the *quod quid est*. Aquinas outlines several methods which we will take as sketches of the scientist's methodology in connecting the *quod quid est* and the proper attribute.

One method is outlined in *In P. A. II 17*. He says:

in order to get the *propter quid* in regard to individual problems that are proposed, it is required to consider divisions and subdivisions, and so to proceed to the individual cases by disputing, having first supposed a common genus. For example, if someone wished to consider why something belongs to certain types of animals, he would have to discover what items belong to every animal. Once these have been discovered, he would once more consult the divisions to determine what things

¹³⁰ *In P. A. II 1* Si enim quaeratur quid est consonantis: respondetur quod est ratio, idest proportio numerorum secundum acutum et grave. Et rursus si quaeretur propter quid acutum consonat gravi; respondetur propter quid id quod habent numeralem proportionem acutum et grave. Sic ergo quaestio quid est et quaestio propter quid redeunt in idem subiecto, quamvis differant ratione.

follow first upon that common item which is contained under animal; for example, what things follow upon every bird. Then one would continue in this manner, always taking the first item into which a given division is immediately divided. This is the very thing that was observed above in the divisions by which one proceeds to investigate *quod quid est*.¹³¹

Aquinas then goes on to give an example in terms of offering an explanation of why creatures like humans and cattle sleep. In this explanation the middle term used is 'animal'. Thus the reason humans sleep, the reason that they have this proper attribute is because they are animals. This connection is only made after empirical investigation of what belongs to animals. In this case the explanation of the proper attribute is given in terms of the genus, the common element, which these different animals have in common. This may appear to undermine our assertion that the *quod quid est* is the explanation. It must be recalled however, that the genus constitutes an important element of the *quod quid est*.

In other demonstrations it will be the genus and specific differences, the *quod quid est*, which will be used as the explanation:

On the other hand, some middles are the same not absolutely but in genus, and these are diversified by certain differences which are based either on the diversity of subjects or on the diversity of their ways of coming to be. For example, if it is asked why an echo comes to be, or why something appears, namely, in a mirror, or why a rainbow is formed. For they are the same problem as to the middle *propter quid*, which is generically the same, since all are caused by a reverberation. However, the reverberations differ specifically. For an echo comes to be through the reverberation of air set in motion by a sounding body toward a concave body; an image in a mirror comes to be by the fact that the modification of the medium is rebounded at the mirror; but the rainbow is formed by the rays of the sun being reflected back by moist vapours.¹³²

The example used is a little odd, echoes and reflections being caused by specifically different reverberations. Aquinas' discussion of this method which employs the *quod quid est* may

¹³¹ *In P. A. II 17* Dicit ergo primo quod ad hoc quod habeamus propter quid circa singula problemata quae ponuntur, oportet considerare divisiones et subdivisiones, et sic ad singula procedere disputando, supposito communi genere. Ut si aliquis velit considerare propter quid aliquid conveniat aliquibus animalibus, oportet accipere qualia sunt quae conveniunt omni animali. Quibus acceptis, oportet iterato accipere secundum divisionem qualia sunt quae consequuntur ad omnem avem: et sic semper debemus procedere accipiendo illud quod est primum, in quod scilicet fit immediate divisio: quod etiam supra observabatur in divisionibus quibus proceditur ad investigandum quod quid est.

¹³² *In P. A. II 17* Sunt autem quaedam media eadem non simpliciter, sed genere, quae quibusdam differentiis diversificantur, quae sumuntur vel ex diversitate subiectorum, vel ex diversitate modi fiendi. Sicut si quaeratur propter quid fit echo, aut propter quid apparet, scilicet aliquid in speculo, vel propter quid generatur iris. Omnia ad medium propter quid, quod est idem genere: omnia enim causantur ex repercussione. Sed repercussiones differunt specie. Nam echo fit sonante ad aliquod corpus concavum; apparitio autem rei in speculo fit propter hoc quod immutatio medii repercutitur ad speculum; iris autem fit propter hoc quod radii solares repercutiuntur ad vapores humidos.

become a little clearer if we consider the parallel case of the proper attributes of different animals being caused by different species which are, nonetheless, animals. Just as the cause of an echo is the reverberation of air set in motion by a sounding body toward a concave body and a reflection in a mirror is caused by the fact that the modification of the medium is rebounded at the mirror, so the cause of risibility is rationality and the cause of neighing, equinity.

The connection made by this method and the preceding method may appear to state a very shallow explanation: rationality is the cause of risibility, equinity is the cause of neighing, animality is the cause of sleep. Saying that equinity causes neighing doesn't appear to tell us very much: horses neigh because they are equine. It has echoes of the empiricist's cliched ridicule of Molière's "opium puts people to sleep because it has a dormitive power."

Christopher Martin, however, has challenged that cliched understanding:

I have claimed that the answer 'opium puts people to sleep because it has a dormitive power' is perfectly true, and, indeed, if the account of science I have just offered is in any way accurate, it is in some sense a model answer. But 'model' answer is exactly right; or perhaps I should call it a blueprint for an answer, or the framework for an answer. It is after all wholly uninformative.¹³³

Martin argues that just because explanations like Molière's and 'horses neigh because they are equine' are uninformative this does not make them bad explanations because they prepare the ground for informative answers. He goes on:

Against the beliefs of any empiricists, or any believers in magic, it tells us that opium has a dormitive power and thus prepares us for an investigation into what that power consists in. Kenny would say it prepares us for an investigation of the vehicle of that power.¹³⁴

Similarly, despite the apparent vacuity of 'horses neigh because they are equine' the scientist engaged in *scientia* can argue that in connecting equinity and neighing he is offering a much deeper explanation than the above vacuous statement appears to offer. He can argue that knowing what equinity is, involves knowing that it entails certain physiological consequences: physiological consequences which are the vehicle for the equine power we call neighing. It is here that the connection between equinity and neighing offers the fullest explanation.

Another method of acquiring an explanation is to take something common which different genera have and use the term analogously to show why these different genera have the properties which they have. The example he uses is the vertebrae with respect to squid, fish and land animals. Other examples which he uses are why leaves fall off vines and what proper attributes we can expect horned animals to have.

¹³³ Martin 1997, page 190.

¹³⁴ *ibid* page 191. The Kenny reference is to *The Metaphysics of Mind* (1991 edition) pages 71-74.

We have offered no more than a sketch of a solution to the question we posed earlier about how the scientist may form the major premise, making the connection between the *quod quid est* and the proper attribute. The various methods outlined above give a hint as to how the relationship between a proper attribute and its cause will be identified. In some cases the cause will be put down to specific difference of the species and not simply the genus, the risibility of humanity being an example of the former and sleep being an example of the latter. Like other elements in the formation of the terms and principles used in demonstrations, the methods outlined above are fundamentally perceptual as the various divisions are made and the connection grasped. Perceptual research, as the above methods show, is an important element in the process of making the connection that such and such a property follows from a given essential nature. Once the connection is made a demonstration can be formed, for example, in the case of sleep:

All animals are capable of sleeping

All humans are animals

Therefore, all humans are capable of sleeping.

With this demonstration we have *scientia* with respect to why humans sleep. It is a demonstration which logically describes what has been discovered, a demonstration which shows why the proper attribute belongs to the subject.

Some people may balk at the above demonstration being called *scientia*, since it doesn't appear especially scientific. Others will say that they always knew that humans slept so why do we need to demonstrate it? The first thing that must be said is that we should not let the banality of the above example blind us to the theory that it illustrates. Yes, everyone knows that humans sleep, but the demonstration seeks to show *why* they sleep. Some may rejoin that this seems to contradict what was said earlier when we stated that prior to the demonstration we only know what the name of the proper attribute signifies not that it actually exists. This is problematic. Aquinas is aware that some conclusions are better known than their principles. He admits that those conclusions based on sense perception, such as humans sleep, are most evident and in fact better known than their principles.¹³⁵ Nevertheless, within the reasoning process this does not undermine the priority of the principles. Perhaps the only way to avoid the contradiction is to admit the banality of the above example, no one is seriously going to offer a demonstration of why humans sleep, and say that in the case of real scientific enquiry there will be uncertainty surrounding the status of the supposed proper attribute. That is, we may be able to cite evidence for it, but that is not the same as saying that such a proper attribute actually exists.

c. Concluding remarks

We conclude our analysis of *scientia* by examining the consequences of our analysis for the certainty of *scientia*. After all:

¹³⁵ *In P. A I 6.*

.....science is the sure and certain knowledge of a thing,....¹³⁶

We have already acknowledged that Stump has problems with the whole issue of the certainty of *scientia*.¹³⁷ She says that given that Aquinas talks of arithmetic being more *certa*, certain, than geometry we should not translate '*certitudo*' as 'certainty'. We have already shown Aquinas' grounds for such a comparison and do not intend to go over them here. Nor will we take up the gauntlet that Stump's unsolved difficulties with *certitudo* leaves for any commentator who analyses *scientia*. Rather we simply intend to examine what kind of certainty is the certainty of *scientia*. What we mean by this will be apparent shortly. The first thing to state is that the perceptual formation of principles does not detract from the certainty of *scientia*. This is because despite the manner of their formation the principles are still necessary and universal. The certainty of *scientia* of which Aquinas speaks attaches both to the knower and the object known. In the case of the knower, an individual who has *scientia* has certain knowledge. In other words, there is no room for doubt, nor is there any possibility that the individual may be mistaken. It is the kind of certainty which is indicative of our knowledge that Socrates is sitting when we are standing close beside him. This sense of certainty is an epistemic sense.

This epistemic certainty of the knower depends on the certainty which attaches to the object known. Aquinas refers to this kind of certainty when he refers to Aristotle's statement that:

That of which there is unqualified scientific knowledge must be something necessary.¹³⁸

This kind of certainty can be twofold. It can be logical, or it can be metaphysical. Logical certainty pertains to necessary truths such as $2+2=4$. For the mathematically competent this logical certainty can lead to epistemic certainty. While $2+2=4$ may well be logically certain, for the innumerate it is hardly a matter of epistemic certainty. Logical certainty also arises from the process of demonstration in so far as conclusions follow from premises.

Metaphysical certainty is harder to pin down. We could cite the necessary existence of God as an example. However, it is questionable if that particular metaphysical certainty can give rise to epistemic certainty. Another candidate would be the essential properties of objects. For example, it is metaphysically necessary that if a subject is a human then, it is necessarily a creature with flesh, bones and other essential properties.

Knowledge of such metaphysical necessities or certainties could be seen as a ground of epistemic certainty which together with the obvious logical certainty of the principles and demonstration ground the epistemic certainty of the knower. The certainty of *scientia* is therefore twofold, mirroring the distinction which is made between *scientia* as a propositional attitude and *scientia* as an organised body of knowledge. On the one hand the certainty of *scientia* refers to the certainty of the organised body of knowledge. An organised body which expresses logical and metaphysical necessities. The certainty of *scientia* also

¹³⁶ *In P. A. I 4*. cf footnote 6.

¹³⁷ Stump 1992, page 142.

¹³⁸ *In P. A. I 4* Scilicet quod id de quo simpliciter habetur scientia, oportet esse necessarium.

refers to the knower's propositional attitude: what is known is known with certainty. The knower knows with certainty because he has followed the rules, he has done what a scientist ought to do. In our analysis of perceptual knowledge we claimed that the normative element of this epistemology is implicit in the descriptive. In the case of *scientia* normativity is much more explicitly deontological. There are certain things that the scientist must do in order to possess *scientia*. He must demonstrate properly, he must begin from proper principles and so on. While we have only alluded to it, the emphasis on fulfilling these epistemic duties is an important characteristic of *scientia*.

Our analysis of *scientia* has been far from extensive. We have merely sought to show the relationship between perceptual knowledge and *scientia* and, in this way, address the various issues raised by Stump and MacDonald. Important elements of *scientia* have been left unanalysed or at best merely hinted at. We have said nothing about the importance of the form of the syllogism in the process of demonstration, very little about demonstration *quia*, the four causes and the four questions which can be asked of every thing.¹³⁹ Nevertheless, we have fulfilled the task which we set ourselves. In examining how the principles of *scientia* are formed we have shown the close relationship between perceptual knowledge and *scientia*. *Scientia* relies on perceptual knowledge to provide its most basic elements. This relationship explains the vignette which we cited at the start of this chapter. In the *sed contra* of *ST* 1a q84 a1 Aquinas says that if we do not have knowledge of material things we cannot have *scientia*. Now we know how important the relationship between perceptual knowledge and *scientia* is. It is a relationship which is two way, perceptual knowledge provides the material for the formation of principles and by the demonstrations of *scientia* we obtain deeper, causal knowledge of the things we sense. Aquinas is clearly referring to this in *ST* 1a q84 a8c when he says that the philosopher seeks to offer an explanation of the things we sense. This contradicts MacDonald's assertion that there is no *scientia* of natural kinds. We have spent most of this analysis discussing the very issue of natural science.

In chapter two we saw that MacDonald attempted to account for perceptual knowledge in terms of a watered down version of *scientia*. In the previous chapter we gave an account of perceptual knowledge which shows that there is no need to describe it in terms of *scientia*. In this chapter we have shown that what MacDonald took to be the paradigm and cornerstone of Aquinas' epistemic theory is actually heavily dependent on the humdrum knowledge that constitutes our dealings with the world. *Scientia* is neither the cornerstone nor the paradigm. However, that is not intended to disparage it: it is, after all, an intellectual virtue. In his analysis MacDonald emphasised the foundationalist structure of *scientia*. MacDonald is correct to identify it. A brief glance at the first five *lectiones* of book one of *In P. A.* ought to convince anyone who doubts the foundationalism of *scientia*. We did not address directly the issue of *scientia*'s foundationalism, but it has been an underlying theme in this analysis. Despite the manner in which the principles of *scientia* are formed, we have shown that the principles are necessary, universal and logically indemonstrable. They constitute the

¹³⁹ Quia est? Propter Quid? Quid est? and An est?

epistemic foundations from which mediate principles are inferred. The foundationalist structure is more clearly apparent in the mathematical sciences than in the natural science on which we chose to base our analysis.

Our analysis also finds grounds for agreement with Stump's assessment of *scientia*. *Scientia* is indeed about finding causal explanations. Our analysis goes further in detailing what is causally explained and the way in which it is causally explained. The analysis disagrees with Stump's assessment of the indemonstrability of principles. It will be recalled that she saw the induction involved in the formation of the principles as undermining their indemonstrability. We do not accept this.

Our analysis has clarified Stump's criticism that foundationalist readings of *scientia* mistakenly see *scientia* as a process of discovery which reasons from first principles to other propositions, rather than a process of judgment to first principles which offer a causal explanation for what we already know. The perceptual/empirical element of *scientia* which we have emphasised is indicative of the process of judgment, of searching for the most fundamental causal explanation. However, in order to be an instance of *scientia* this empirical research must be expressed systematically in a demonstrative syllogism which follows the laws of logic. A syllogism which will reason from principles to a conclusion. *Scientia*, in its different stages can be a search for first principles and a reasoning from first principles. Therefore, while Stump's reliabilist, externalist reading of Aquinas' account of perceptual knowledge is in direct opposition to MacDonald's foundationalist, internalist interpretation of the same topic, their causal and the foundationalist readings of *scientia* are not mutually exclusive. Both are legitimate interpretations which emphasise different aspects of *scientia*. Unfortunately Stump and MacDonald place greater emphasis on one element of *scientia* to the detriment of the other and herein lies the shortcoming of their interpretations.

This interpretation has highlighted the reliance of *scientia* on perceptual knowledge for the formation of its principles. It is the universality and necessity of these principles which constitute the universality, necessity and, with other elements such as the form of the syllogism, the certainty of *scientia*. Earlier we drew a parallel between the indemonstrable principles of Aquinas' *scientia* such as 'man is a rational animal' and definitions from the world of contemporary science such as 'an acid is a proton donor'. There are, of course, differences between the two principles, differences which show the difference between *scientia* and contemporary science. The latter is an extremely detailed and technical piece of knowledge. Aquinas' example is not. *Scientia* is limited. While some examples of *scientia* will not be as banal as the risibility or sleep examples, *scientia* is, in comparison to contemporary science, limited in detail.

Furthermore, despite the emphasis we have placed on perceptual research in the formation of principles some of the principles are formed on the basis of hypothetical suppositions that, in the light of modern science, are just wrong, for example, the principles that leaves fall off

trees because they are broad and that horned animals don't have an upper set of teeth because the dental matter is turned into horns.¹⁴⁰ With the benefit of scientific hindsight principles like these clearly undermine *scientia*.

However, we did not examine the principles of *scientia* in order to use hindsight to dismiss it. The limitedness of *scientia* is not really our concern. We have attempted to analyse what St. Thomas had to say on the formation of principles in order to shed fresh light on the relationship between *scientia* and perceptual knowledge. This we have done.

¹⁴⁰ *In P. A.* II 17; 18

5. *Aquinas on Human Knowledge: A Mediaeval Naturalism*

Epistemology, or something like it, simply falls into place as a chapter of psychology and hence, of natural science.

W. V. O. Quine: 'Epistemology Naturalised' ¹

In chapter two we outlined attempts by various contemporary authors to apply the categories of contemporary epistemology to the epistemology of St. Thomas. There we saw his epistemology labelled a bewildering variety of '-ists': internalist, externalist, foundationalist and reliabilist. These attempts to map categories from the contemporary epistemology onto his epistemology were catalysts for this work.

In the opening chapter we began this work by showing that Aquinas' epistemology is much more complex and broad ranging than contemporary epistemological theories. Consideration of this ought to have warned those contemporary authors that mapping categories from contemporary epistemology onto Aquinas' epistemology is not a simple and straightforward task. Towards the end of our outline of Aquinas' epistemology in chapter one we noticed an apparent lacuna in his theory of human epistemology. We noticed that, in comparison to divine knowledge, Aquinas holds that human knowledge exists in a fragmented fashion.

¹ Quine 1969, page 82.

Thus in discussing divine knowledge in *ST* 1a q14 a1 ad2 he shows the perfection and simplicity of God's knowledge by emphasising the divided condition of human knowledge, as seen from the fact that we have different kinds of knowledge diversified by different objects. These different kinds of knowledge are the intellectual virtues: understanding, *scientia*, wisdom, prudence and art. Furthermore, in other places, such as *ST* 2a2ae q2 a1, he outlines intellectual acts, such as *opinio* and *dubitatio* which fall short of a firm grasp of the truth and lack the firm assent which characterises knowledge. In all of these occasions no reference is ever made to perceptual knowledge, for example, the knowledge based on the evidence of my eyes that Socrates is sitting beside me. When he does discuss our knowledge of material reality, as in *ST* 1a q84ff, he discusses the processes which cause it without really saying very much about the properties of this kind of knowledge, as he does, for example, in the case of *scientia*. In short, there seemed to be a lacuna in his theory of human epistemology concerning perceptual knowledge. This lacuna may well have been the motivation for MacDonald and Ross, in their accounts of his epistemology, to offer interpretations of Aquinas' theory of perceptual knowledge which saw it as kind of *scientia* or instance of *credere* respectively, that is, as a watered down version of one kind of human knowledge or intellectual act.

Given this apparent lacuna and the various attempted mappings and descriptions of Aquinas' epistemology which we set out in chapter two, in chapter three we offered our own analysis of his account of perceptual knowledge. In that analysis we showed how some of our judgments about everyday states of affairs are certain and infallible, and are properly called knowledge, while other judgments lack firm assent and are instances of *opinio* or *dubitatio*. We also showed that at times our perceptual judgments can be mistaken and we sketched an important feature of perceptual knowledge: its defeasibility. Our analysis allowed perceptual knowledge to stand on its own and did not write it off as a watered down version of an intellectual virtue or another intellectual activity, such as Ross' attempt with *credere*. Furthermore, as part of this analysis we saw which of the contemporary epistemological theories can be most successfully mapped onto Aquinas' account of perceptual knowledge. In the previous chapter we developed our analysis further by looking at the relationship between perceptual knowledge and *scientia*. We saw that the principles of *scientia* rest on perceptual knowledge. As part of this discussion we also saw how the understanding of principles, to an extent, depends on perceptual judgments.

On the basis of our analysis we can draw three general conclusions. Two conclusions concern perceptual knowledge and its role in Aquinas' account of human knowledge. Another concerns the epistemology of *ST* 1a q84ff.

Our first conclusion is that there is no lacuna concerning perceptual knowledge within Aquinas' human epistemology. This conclusion builds on the analysis of perceptual knowledge given in chapter three. There we saw that perceptual knowledge is a complex entity. At times we can make perceptual judgments which are certain. These judgments

constitute what we, after Plantinga's account of warrant, have labelled the 'paradigm case'. These judgments are properly called knowledge. Judgments such as "Socrates is sitting next to me" have the certainty and the grasp of truth indicative of the intellectual virtues. In particular, there is a similarity between judgments like these and *intellectus*, the intellectual virtue of grasping first principles. In the case of understanding of simple truths, such as principles, the intellect grasps their truth and assents immediately. Similarly, the intellect assents immediately to the proposition that Socrates is sitting beside me. The truth of this judgment is readily apparent and the judgment has the certainty and infallibility characteristic of the understanding of principles. Perceptual knowledge like this closely resembles understanding. Of course, unlike the understanding of principles, perceptual knowledge is defeasible. Therefore, the certainty of judgments such as Socrates is sitting beside me notwithstanding, the defeasibility of perceptual knowledge, the possibility that we may be mistaken, is what distinguishes perceptual knowledge from *intellectus*.

Other perceptual judgments fall short of the paradigm and are not strictly speaking perceptual knowledge. We are unsure if it is Socrates or Plato who is sitting down. We are unsure if the tower is square or round. It is due to the limitedness of our cognitive faculties that sometimes the judgments which we make about the world around us are instances of *opinio*, when we think it is Socrates, but have a niggling fear that it might be Plato. At other times, they may be instances of *suspicio*: we tentatively decide that it might be Socrates. At still other times we will be left doubting, we just can't decide if it is Socrates or Plato. Properly speaking having an opinion or a doubt is not an instance of perceptual knowledge, although such judgments constitute much of what we loosely label perceptual knowledge. These judgments lack the firm assent which characterises knowledge. Like judgments of perceptual knowledge proper, the intellectual process constituting these inconclusive judgments will involve a grasp of a quiddity, but the second act of the intellect is not a firm knowing of the truth that such and such is the case and so firm assent is lacking. The evidence is just not there for the intellect to attain its end, a certain knowledge of the truth. As we saw, it is when we go beyond the evidence that we make mistakes.

Aquinas discusses these inconclusive acts of the intellect in the context of his discussion of *credere*, the act of faith, in *ST 2a2ae q2 a1c*. Earlier, in chapter two, we saw that Ross tried to write off perceptual knowledge as *credere*. We can now reiterate that Ross is wrong. Perceptual judgments may be instances of *opinio* or *suspicio*, they are never instances of *credere*. *Credere* is a unique kind of act, involving the intellect and the will, with a unique kind of object: God. It is an intellectual act which, as we have seen, straddles the divide between human knowledge such as *scientia* and judgments such as *opinio*. This is not to say however, that perceptual judgments will have no role in *credere*. We will see what their role is momentarily when we look at the virtue of wisdom.

The complexity of perceptual judgments, that in some cases they can be like the intellectual virtues and in other cases be inconclusive acts, is one reason why perceptual knowledge is

omitted from the two lists we mentioned above. However, this omission does not mean that there is a lacuna concerning perceptual knowledge within Aquinas' human epistemology. This is our first conclusion.

Our second conclusion is based on our analysis of the relationship between perceptual judgments and *scientia* in the preceding chapter. It also offers further clarification of the first conclusion. We conclude that perceptual judgments play a seminal role in Aquinas' account of human epistemology. All the different kinds of human knowledge and judgments that St. Thomas identifies, be they in the shape of *scientia*, or *opinio* and *dubitatio*, are all fundamentally connected to perception and are fundamentally judgments, in various shapes and forms, about what we perceive. Hence, there is no lacuna involved in omitting perceptual knowledge from the lists of intellectual virtues and inconclusive intellectual acts. In many respects, this is simply a further clarification of the previous conclusion. This second conclusion, however, intends to state something more. We conclude that the seminal role of perceptual judgments is such that they underpins all human knowledge, or to put it another way, the intellectual virtues, with the exception of understanding, depend on perceptual judgments. This conclusion is illustrated by Aquinas' remark in *ST* 1a q84 a1sc where he says that if the intellect didn't have knowledge (*cognitio*) of material things it could not have demonstrative knowledge (*scientia*) of them. In the preceding chapter the seminal role of perceptual knowledge in *scientia* was seen in the formation of *scientia*'s principles. In fact, like *scientia* all the intellectual virtues, except understanding, depend on perceptual judgments. This can be seen in the following sketches of the relationships between perceptual judgments and the intellectual virtues of *scientia*, wisdom, prudence and art. Once we have offered these sketches we will address our final conclusion concerning the epistemology of *ST* 1a q84.

Scientia has its own structure and is different from other intellectual virtues, yet it is closely related to perceptual knowledge. Importantly *scientia* offers a deeper knowledge of the things which are objects of perceptual judgments. Like all human knowledge, *scientia* cannot be acquired without information received from perception. In the last chapter we saw the importance of perceptual knowledge in the formation of the principles of *scientia*. Some may question this assertion. How are the truths of mathematics related to perceptual judgments? What role does perception play in learning that $2+2=4$? To answer these questions we must recall Aquinas' assertion that humans do not have innate knowledge. Only the angels have innate knowledge. Therefore, according to him we do not innately know that $2+2=4$. Thus mathematical knowledge must be obtained in the way which we obtain all our knowledge, from the senses. Within mathematics perceptual knowledge will be involved in the use of examples, sketches of geometric figures, explanations of proofs and so on. On the basis of these simple mathematical truths we can then go on to derive other truths, in the manner which *scientia* suggests, reasoning from what is better known to what is less well known. Even as we progress towards more recondite knowledge, we use information derived from perception. We put examples before people so that they can understand what they are being

taught, for example, the triangle on the blackboard to illustrate that a triangle is a three sided figure the sum of whose angles equal two right angles. As Aquinas comments:

This is the reason; indeed, why, when we want to help someone understand something, we propose examples to him so that he can form images for himself in order to understand.²

We are not suggesting that such images are perceptual knowledge, rather we are merely showing the reliance of an intellectual virtue on information received from perception. At its most basic level *scientia* is knowledge which comes from perception.

Wisdom, the intellectual virtue which considers the highest and deepest causes and which judges and orders all things,³ the virtue which furnishes us with our limited knowledge of the first cause, God, is also at its most basic level dependent on perceptual judgments:

The proper object of the human intellect, on the other hand, since it is joined to a body, is a nature or 'whatness' found in corporeal matter - the intellect, in fact, rises to the limited knowledge it has on invisible things by way of the nature of visible things.⁴

It is from our knowledge of material reality that we attain our imperfect knowledge of God.⁵ Strictly speaking this knowledge of God is characteristic of the knowledge which we would assign to the theologian, but, in any act of faith there must be an intellectual component. The believer must believe in something. Therefore, in an act of faith there must be some limited knowledge of God. This is the sense in which perceptual judgment plays a role in *credere*. It plays a role in so far as perceptual knowledge facilitates humanity's imperfect knowledge of God. It is this imperfect knowledge, lacking the manifest vision of truth, to borrow Ross' translation of Aquinas' phrase, which constitutes the intellectual component of *credere*. Wisdom is not merely a matter of our imperfect knowledge of God, it is also the virtue which deals with our knowledge of being, causes, substance, accidents and the many other things in the panoply of metaphysics. These concepts are abstractions from our experience and judgments about the world. In this sense, wisdom like *scientia* offers a deeper insight into the reality of which we are a part and about which we make judgments.

Wisdom, and *scientia* are virtues of the speculative intellect. As well as these virtues, Aquinas also lists two other intellectual virtues which are like the speculative virtues but also different from them. These intellectual virtues are art and prudence. He says of art that:

² *ibid.* Et inde est etiam quod quando alium volumus facere aliquid intelligere, proponimus ei exempla, ex quibus sibi phantasmata formare possit ad intelligendum.

The verb '*proponere*' in this extract literally means 'to set forth', 'to display'. This literal meaning reinforces the point we make above about using perceptual aids to help grasp particular instances of *scientia*.

³ ST 1a2ae q57a2c.

⁴ ST 1a q84 a7c Intellectus autem humani, qui est conjunctus corpori, proprium objectum est quidditas sive natura in materia corporali existens: et per hujusmodi naturas visibilibus rerum etiam in invisibilibus rerum aliqualem cognitionem ascendit.

⁵ ST 1a q88 a2c.

Art is nothing other than right judgment about things to be made. Yet the good of these depends, not upon the disposition of the maker's appetite, but on the worth of the very work done. An artist as such is not commendable for the will which makes a work, but for its quality. Art properly speaking, then, is a practical habit.⁶

Art, unlike the other virtues of the speculative intellect has a practical dimension which these other virtues lack. Nonetheless it is like them because it gives only the ability to act well, as opposed to virtues of the appetite which entail acting well when used.⁷ This may seem a little confusing. Aquinas' point is that in the case of art, the good depends on the work the artists does, not on the actual exercise of the virtue, as is the case with the moral virtues of the will. Prudence is akin to the virtue of art in being like the speculative virtues, yet different from art and the other speculative virtues because it involves the will:

The reason for the difference is that art is right judgment about things to be produced, while prudence is rectified judgment about things to be done.....Consequently, prudence, which is right reason about things to be done, requires that a man be rightly disposed with regard to ends; and this depends on the rightness of his appetite. Consequently moral virtue, which makes the appetite right, is a precondition of prudence.⁸

The differences between the assorted virtues are not particularly relevant to our discussion. We are interested in the role of perceptual judgments in art and prudence. In the case of art the role of perceptual judgment is obvious. Art is 'right judgment about things to be made'; this judgment will have been shaped by what we and our society consider art to be. It will be shaped by the artist's *experience of art* and by the skill he has acquired as an artist. The connection between prudence and perceptual judgment is also obvious. Prudence is right judgment about things to be done (*agibilium*). We are not born with a knowledge of the things to be done, *agibilia*. Knowing what things are to be done requires experience and herein lies the connection between perceptual judgments and prudence.

Unlike the other intellectual virtues understanding does not depend on perceptual judgments.

⁶ ST 1a2ae q57 a3c Dicendum quod ars nihil aliud est quam ratio recta aliquorum operum faciendorum. Quorum tamen bonum non consistit in eo quod appetitus humanus aliquo se habet, sed in eo quod ipsum opus quod fit, in se bonum est. Non enim pertinet ad laudem artificis, in quantum artifex est, qua voluntate opus faciat, sed quale sit opus quod facit. Sic igitur ars, proprie loquendo habitus operativus est

⁷ *ibid* Et ideo eo modo ars habet rationem virtutis, sicut et habitus speculativi, in quantum scilicet nec ars nec habitus speculativus faciunt bonum opus quantum ad usum, quod est proprium virtutis perficientis appetitum, sed solum quantum ad facultatem bene agendi

⁸ ST 1a2ae q57 a4c Cujus differentiae ratio est, quia ars est recta ratio factibilium, prudentia vero est recta ratio agibilium.....Et ideo ad prudentiam, quae est recta ratio agibilium, requiritur quod homo sit bene dispositus circa fines; quod quidem est per appetitum rectum. Et ideo ad prudentiam requiritur moralis virtus, per quam fit appetitus rectus.

The translation of this text above translates " ...prudentia vero est recta ratio agibilium." as "while prudence is rectified judgment about things to be done." This is an unfortunate translation. To describe the judgment as "rectified" suggests that there was something wrong with the judgment which has been mended. A better translation would be "prudence is right judgment about things to be done."

It is clearly not the case that we make a perceptual judgment before we understand something. However, in the previous chapter we saw that the understanding of principles could not take place without some input from perception. Thus, even the understanding of principles, the most basic truths, depends, to some extent, on perception. This is hardly surprising. Recall *ST* 1a q84 a7c:

It is impossible for our intellect, in its present state of being joined to a body capable of receiving impressions, actually to understand anything without turning to sense images.⁹

We are not suggesting that turning to the sense images is a perceptual judgment or an act of perceptual knowledge. Rather our point is to stress that even our grasp of the simplest truths, is based on what we have received from the senses and is therefore at its most fundamental dependent on what we perceive.

On the basis of these brief analyses of the relationships between perceptual judgments and the intellectual virtues it could be argued that the intellectual virtues, despite the differences in their objects and procedures, are simply special instances of perceptual knowledge, special instances of our knowledge of material reality. Importantly, perception grounds the whole human epistemic edifice. The judgments of that edifice, whether inconclusive, or those which are indicative of the intellectual virtues, are all judgments to some degree about what we perceive, even our judgments about God because, as we have seen, we come to know him through his creation. Perceptual judgments play a seminal role in human knowledge, underpinning the intellectual virtues we have identified. This is not exactly a ground breaking conclusion, but for some reason commentators seem to have missed it and to have seen perceptual judgments in the light of, for example, *scientia* rather than *scientia* in the light of perceptual judgments.

Our investigation of the processes involved in perceptual knowledge revealed that Aquinas gives a descriptive and externalist account which contains elements of foundationalism, internalism and most noticeably reliabilism. The fact that these theories can be found in varying degrees is a testimony to the complexity of perceptual knowledge. As we said earlier, a mapping from contemporary epistemological theories onto St. Thomas' epistemology is not easily achievable. Moreover, we observed that some parts of Aquinas' epistemology can be, for example, more foundationalist than others. Woe betide the commentator who ignores the complexity of Aquinas' theory of knowledge and tries to take one element of it as indicative of his whole theory. Unfortunately, this seems to have been the tendency of the commentators whom we looked at in chapter two.

These criticisms aside, we now wish to draw a conclusion about the epistemology of *ST* 1a q84 and offer our own mapping. The account of our knowledge of material reality which he begins to address in *ST* 1a q84, and develops in subsequent questions, relies heavily on

⁹ *ST* 1a q84 a7c Dicendum quod impossibile est intellectum nostrum, secundum praesentis vitae statum quo passibili corpori conjungitur, aliquid intelligere in actu, nisi convertendo se ad phantasmata.

mediaeval psychology. This account describes *how* the human intellect understands material things by abstracting from the sense images. The epistemology outlined in *ST* 1a q84ff is fundamentally a descriptive epistemology, no reference is made to epistemic norms or criteria which must be fulfilled in order to claim that we know that *p*. In our discussion of perceptual knowledge we noted that this psychological component, as we called it, is complemented by a metaphysical component: Aquinas' metaphysical realism. Moreover, we should also recall that his mediaeval psychology uses metaphysical categories, such as *esse intentionale*.

These metaphysical components notwithstanding. It is by recognising the descriptive nature of Aquinas' epistemology that a mapping can be most successful. The complexity of his epistemology meant that epistemic labels such as externalism, internalism, reliabilism and foundationalism could not adequately describe Aquinas' epistemology. However, regardless of the complexity of his epistemology, human knowledge, for him, will always begin in the manner described in *ST* 1a q84. The same psychological processes will always take place in wisdom, *scientia*, understanding and perceptual knowledge. In some of these types of knowledge other elements will be required, such as demonstration in *scientia*, but these elements do not undermine the fundamental role of the psychological processes. On the basis of this evidence we conclude that Aquinas anticipates Quine by 700 years. For Aquinas human epistemology fell into place as a chapter of psychology. When one recognises the descriptive nature of Aquinas' epistemology, one recognises that the most successful mapping from contemporary epistemology onto that of Aquinas is epistemic naturalism, as espoused, not so much by Quine, but by less radical naturalists such as Goldman, Kornblith and Plantinga; naturalists who describe the normative in terms of the descriptive. This mapping of such a broad contemporary epistemic theory¹⁰ on to the complex and nuanced human epistemology of Aquinas is the best that can be achieved. 'Naturalism' can be applied to Aquinas' epistemology without attaching the assorted caveats required when we characterise that epistemology as externalist or reliabilist.

Within contemporary naturalisms the account of warrant offered by Plantinga comes closest to matching elements of Aquinas' epistemology, particularly perceptual knowledge. Of course, there are differences: Plantinga's account is foundationalist and he does not employ metaphysics within his descriptive account in the way that Aquinas does. Nevertheless, there is a close similarity. Plantinga, in *Warrant and Proper Function*, draws the conclusion that:

The right way to be a naturalist in epistemology is to be a supernaturalist in metaphysics.¹¹

Given an obvious interpretation of this passage, there is hardly any daylight between Aquinas' position and Plantinga's.

¹⁰ Just how broad naturalism is can be seen in chapter two of this work. There we saw both an internalist, foundationalist naturalism, as offered by Pollock, and an externalist, reliabilist account, as offered by Goldman.

¹¹ Plantinga 1993b page 211

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