TELEOLOGY IN THE THOUGHT OF WILLIAM OF OCKHAM

A thesis by

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submitted to Dr. Robert Sweetman

in partial fulfilment of the requirements for the degree of

Master of Arts

at

the Institute for Christian Studies

Toronto, Ontario

July, 2007

Your file Votre référence
ISBN: 978-0-494-30197-5
Our file Notre référence
ISBN: 978-0-494-30197-5

To Daniel Anema and Andrew Siebert

ABSTRACT

This thesis offers an account of William of Ockham's understanding of teleology in order to question the standard modernist history of the concept. Ockham does not rely on the Aristotelian analogy between art and nature to establish that all natural things seek an end. Nor does he simply relativize the analogy by considering all creatures as having their ends fixed by God. Instead, Ockham draws a sharp distinction between voluntary and natural agency, which results in two very different uses of final causality. On the one hand, the way in which final causes operate in voluntary agents cannot compromise their freedom. On the other hand, the way they operate in natural agents cannot explain their necessity. Ockham negotiates the radical difference between the causality of voluntary and natural agents by positing a new analogy altogether, comparing it to the difference between will and intellect.

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ACKNOWLEDGMENTS

Looking back on the past two years of school, I am amazed at how much has funnelled directly into the production of this thesis. I would like to mention especially the formative seminars I took with Bob Sweetman at ICS and Deborah Black and Martin Pickavé at the University of Toronto. Throughout the writing stage of this thesis, Bob surpassed any expectations I might have had about his advisorial role with his (very!) swift and constructive responses. He also helped with translating Latin passages where needed, as did my Latin teacher at the Toronto School of Theology, Josh Morhart. My fiancée, Amanda Sparkman, has been incredibly supportive and patient, and I am looking forward to reciprocating when she begins writing her dissertation. Lastly, I would like to acknowledge two *sine qua non* causes of this thesis. Without the conversations I had with Daniel Anema about the Institute for Christian Studies, I am sure I would have never gone there. Without the conversations I had with Andrew Siebert on the topic of science and teleology, I would have never gone there, either. This thesis is dedicated to them.

Research was graciously funded by a Canada Graduate Scholarship in 2006-07 from the Social Sciences and Humanities Resource Council of Canada (SSHRC).

LIST OF ABBREVIATIONS

References to Ockham give the title, book, distinction (where applicable), and question. The abbreviated titles are as follows:

Brev. Phys.	*Brevis Summa Libri Physicorum*
Connex.	*De Connexione Virtutem*
Expos. Phys.	*Expositio in Libros Physicorum Aristotelis*
OPh	*Opera Philosophica*
OTh	*Opera Theologica*
Quodl.	*Quodlibeta Septem*
Sent.	*Quaestiones in Libros Sententiarum* (I: *Ordinatio*; II-IV: *Reportatio*)
SL	*Summa Logicae*

[Note: References to other classical and medieval works do not necessarily follow the same pattern, but are straightforward and consistent throughout (e.g., *ST* I.87.3 = Thomas Aquinas, *Summa Theologicae*, Prima Pars, question 87, article 3; *Ord.* IV, suppl., d. 49, qq. 9-10 = John Duns Scotus, *Ordinatio*, supplement, distinction 49, questions 9-10).]

LIST OF TRANSLATIONS USED

English translations of Ockham's works are cited, where available; otherwise, the pagination for the Latin critical edition is given. This is flagged in the notes by either 'trans.' or '*OTh*'/'*OPh*' preceding the page number, respectively. The corresponding Latin text is quoted only in those cases where an unpublished translation has been provided.

Brev. Phys.	*Ockham on Aristotle's Physics*, trans. J. Davies
Connex.	*Ockham on the Virtues*, ed. Rega Wood
Expos. Phys. prol.	in *Philosophical Writings*, ed. Philotheus Boehner, 2-16
Quodl.	*Quodlibetal Questions*, trans. Alfred J. Freddoso and Francis E. Kelly
Sent. prol., 1	in *Philosophical Writings*, ed. Philotheus Boehner, 18-25
Sent. I.1.1-4, 6	in Arthur Stephen McGrade, John Kilcullen, and Matthew Kempshall, eds., *The Cambridge Translations of Medieval Philosophical Texts*, vol. 2, 351-417
Sent. I.27.3	in Robert Pasnau, ed., *The Cambridge Translations of Medieval Philosophical Texts*, vol. 3, 220-44
Sent. II.12-13	in Arthur Hyman and James Walsh, eds., *Philosophy in the Middle Ages*, 670-79 [Note: incorrectly listed as *Sent.* II.15]
SL I	*Ockham's Theory of Terms*, trans. Michael J. Loux
SL II	*Ockham's Theory of Propositions*, trans. Alfred J. Freddoso and Henry Schuurman

INTRODUCTION

GENEALOGY OF TELEOLOGY

Aristotle's Account of Teleology

The first book of the Aristotle's *Metaphysics* features one of the most famous opening lines in philosophical literature: "All men by nature desire to know."[1] What is perhaps less well-known is the philosophical-historical account of that fact that follows. Aristotle begins by arguing that the most thorough and certain knowledge—the kind worth desiring, that is—must be of causes, since causes tell us the 'why' of something. He then presents a genealogy of the scientific inquiry into causality, one which culminates in his own four-fold model.

The Material Cause

The earliest Greek thinkers to ruminate on the why-question debated over what everything is made of. Thales claimed that all is water; Anaximenes and Diogenes thought that air is more fundamental than water; Hippasus and Heraclitus ascribed this priority to fire; while Empedocles said that all four elements, earth included, were foundational. According to Aristotle, each theory was seeking after what he labels the material cause or "substratum" of things. In the *Physics*, he defines this principle as "that out of which a thing comes to be and which persists."[2] Because these proto-

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[1] *Metaphysics* I.1 980a21 (trans. in *The Complete Works of Aristotle: The Revised Oxford Translation*, 2 vols., ed. Jonathan Barnes [Princeton: Princeton University Press, 1984], 1552).

[2] *Physics* II.3 194b24 (trans. Barnes, 332).

philosophers failed to discern any other sort of cause, they equated all of nature with its material principle. As a result, they were forced to claim that nothing changes, since the substratum in which any change occurs always remains the same.[3]

The Efficient Cause

According to Aristotle, some attempted to transcend this static philosophy by recognizing change through the dynamic interplay of material principles. This set the stage for the next generation of thinkers who faintly discerned that something else other than the substratum must be a cause. Aristotle compares them to untrained fighters who occasionally landed a good punch, but did not "fight on scientific principles."[4] The second cause that they invoked only sporadically is the 'source of change,' which Aristotle calls the agent or the efficient cause. He observes that many of these philosophers thought of something like beauty, or love, or reason as the agent of change in the substratum, sometimes along with its opposite.[5] Despite the nobility or transcendence of these envisaged efficient causes, it is evident that those at the second stage in Aristotle's genealogy remained essentially mechanistic. Their universe is simply populated with movers moving within a medium. No explanation for this movement prevails save that of bare natural necessity or chance. Aristotle's inclusion of Democritus as part of this second wave is telling; in the *Parts of Animals*, he notes that Democritus espoused the view that the essence of an animal is just the sum of its material

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[3]*Metaphysics* I.3 983a23-984a17 (trans. Barnes, 1555-56).

[4]Ibid. I.4 985a10-18 (trans. Barnes, 1558).

[5]Ibid. I.3-4 984a18-985b21 (trans. Barnes, 1557-59).

composition: blood, flesh, and bone.[6] It would take another step of scientific progress, and another type of causality, for a proper understanding of the essence of a thing to be hinted at.

The Formal Cause

Aristotle credits the Pythagoreans and the Platonists for arriving at this third stage. The Pythagoreans realized that finitude and infinity were principles not contained in either material and efficient causality. Hence, when they argued that number must be the substance of things, they were grasping at what Aristotle variously calls the formal cause, the 'whatness,' or the essence of a thing.[7] The formal cause is that which becomes present in the matter when something new comes to be. Because matter, on its own, is merely potential, the efficient cause would produce no result (i.e., would make nothing actual) without a form. Thus, nature is not constituted merely by material causes as the earliest philosophers supposed, but through the conjunction of material with formal causes.[8] Aristotle considers Plato to have worked out the first genuine theory of form, although it was not fully progressive because it supposed (falsely) that movement could be explained by recourse to 'participation' in eternal 'Ideas'. Plato thus neglected the very cause through whose agency the form is actually acquired.[9]

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[6]*Parts of Animals* I.1 640b5-33 (trans. Barnes, 996-97).

[7]*Metaphysics* I.5 985b22-987a28 (trans. Barnes, 1559-61).

[8]See *Physics* II.2 194a12-27 (trans. Barnes, 331).

[9]*Metaphysics* I.6 987a29-988a16 (trans. Barnes, 1561-62).

The Final Cause

Aristotle thinks that the only way of maintaining the proper relationship between material, efficient, and formal causes is by postulating a fourth cause: the 'end' or 'that for the sake of which' things exist. He notes that this 'final cause' is what his predecessors were searching for when they talked about beauty, the good, and so on as the ultimate principle of things. However, they failed to perceive the 'end' precisely in its role *as* final cause by conflating it with something that merely initiates movement. But the 'end' is not the agent *of* movement; it is the reason *for which* the agent initiates movement. For Aristotle, this 'end' of movement is nothing other than the impression of form in matter. Through final causality, the philosopher is able to regard all phenomena in the universe as directed towards particular ends, which (because they are associated with essences) can be defined. Insofar as change is goal-directed in this way, therefore, the 'why'-question can be fully answered of it.[10]

Human activity is the most immediately explicable by means of final causes. As Aristotle claims in the opening line of the *Nichomachean Ethics*, "Every art and every inquiry, and similarly every action and pursuit, is thought to aim at some good; and for this reason the good has rightly been declared to be that at which all things aim."[11] He then demonstrates that happiness is the highest good towards which human activity is directed. All other goods, such as pleasure, fame, and wealth, are oriented towards it as means to an end. The task of moral philosophy, then, is the assessment of what

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[10]Ibid. I.7 988a17-988b23 (trans. Barnes, 1562-63).

[11]*Nichomachean Ethics* I.1 1094a1-3 (trans. Barnes, 1729).

happiness consists in and how humans may attain it.

But natural philosophy employs final causality (or *teleology*) as well. In the *Physics*, Aristotle draws an analogy between the human 'arts' and the activities of natural things. Human-manufactured products are directed towards some purpose externally; as Aristotle notes, every artisan must deliberate on an end for her materials before fashioning them. Natural beings, on the other hand, do not require an external, deliberative agent in order to act, yet their activity is similarly purposive. This is especially evident with animals as well as plants. Aristotle argues, "If then it is both by nature and for an end that the swallow makes a nest and the spider its web, and plants grow leaves for the sake of the fruit and send their roots down (not up) for the sake of nourishment, it is plain that this kind of cause is operative in things which come to be and are by nature."[12] Because natural beings do not deliberate on their activities as humans do, Aristotle concludes that their final causes are fixed internally.[13]

Returning to the *Metaphysics*, then, it is clear that Aristotle regards the last stage of scientific inquiry to be ushered in by his own discovery of the final cause. With it in place, Aristotle thinks that causality has been properly delineated. He regards the final cause as first and highest of all the causes, since it above all answers the 'why'-question of science. And it does so in both senses: through it, an explanation can be given both *by* and *of* science. This is evident in the 'vertical' arrangement of the sciences on Aristotle's account. On the one hand, the sciences are considered as higher and lower relative to the

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[12]*Physics* II.8 199a26-31 (trans. Barnes, 340).

[13]Ibid. 198b9-199b32 (trans. Barnes, 339-41).

scope of their apprehension of final causes of the universe. As Aristotle argues, "the science which knows to what end each thing must be done is the most authoritative of the sciences, and more authoritative than any ancillary science; and this end is the good of that thing, and in general the supreme good in the whole of nature."[14] Metaphysics is the highest, that is, because it demonstrates that a Prime Mover exists for whose sake all things in the universe move and are moved.

On the other hand, the sciences are arranged as lower and higher because the former are pursued *for the sake of* the latter. That is to say, they are also structured in the exact same manner by their *own* final causes. Moreover, the genealogy offered in the first book of the *Metaphysics* reveals that scientific inquiry is teleologically oriented along its 'horizontal' axis as well. Aristotle presents his philosophical predecessors as all having worked towards the same goal, the one mentioned in that famous opening line: knowledge. But the highest sort of knowledge and therefore the kind that only arrives at the end of the genealogy is precisely that of the final causes of things.

Aristotle's teleology thus doubles on itself: final causality is the final cause. In other words, his historical account of scientific inquiry is not just a genealogy of teleology but a teleological genealogy as well. It describes how scientific inquiry has been a goal-directed process that has culminated in the discovery of the final cause. Since the final cause was unknown to earlier philosophers, of course, the process could only be described as progress once this end had been reached.

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[14] *Metaphysics* I.1 982b4-7 (trans. Barnes, 1554).

Teleology after Aristotle: The Modernist Genealogy

It is safe to say that the progress documented by Aristotle has been eclipsed by the scientific and technological innovations that have shaped the modernity that has come to characterize the Western world. What is more, the story told about this history of science by and large replays Aristotle's genealogy in reverse. Beginning with Aristotle, it retains the teleological concept of scientific progress. But, with not a little irony, it reads that progress in terms of the gradual dismantling of teleology in favour of a totally mechanistic account of the workings of the universe.

The Middle Ages: Teleology Theologized

If the first chapter of the modernist genealogy of teleology conventionally begins where Aristotle ends, with Aristotle himself, then its second chapter covers the Middle Ages in broad strokes as the period when Aristotelianism reigned in philosophy. This chapter is characterized principally in terms of the modification of Aristotle's fourfold model of causality to accommodate a monotheistic sensibility. In construing the medieval period in this manner, its focus slants towards the universities of the Latin West during the twelfth and thirteenth centuries, where the Aristotelian programme of science is supposedly hybridized with doctrinal Christianity. The title of master architect of this Christian-Aristotelian synthesis usually then goes to Thomas Aquinas, who is thus taken as representative of the medieval period as a whole.[15]

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[15]Evidence of this sort of reduction of the Middle Ages abounds; it is, for example, virtually universal in the sort of popular literature that bears titles like, *Philosophy from So-and-So to So-and-So, 13 Greatest Philosophers*, etc. The apotheosizing of Aquinas is rooted in the development of neo-Thomist historiography following Pope Leo XIII's 1879 encyclical *Aeterni Patris* (available from http://www.

In this second chapter of teleology, one sees Aristotle's 'nature' transformed into 'creation', the handiwork of a personal and omniscient Creator-God. As a result, the final causes in nature are no longer viewed as simply internal to natural beings; rather, they point to the work of a divine Artisan. In other words, the fact that natural beings do not deliberate in order to act for the sake of some end suggests that they were so directed by Someone who does. This enlisting of natural teleology for natural theology signals a number of alterations to the Aristotelian paradigm. First, the analogy that Aristotle draws between art and nature is relativized, since all things have their ends externally fixed by God. This entails, secondly, that the Prime Mover is no longer primarily the ultimate *final* cause of all movement, as it is depicted in the *Metaphysics*. Instead, the Prime Mover of the Middle Ages is first of all the divine Agent who creates the world.[16] This

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newadvent.org/library/docs_le13ae.htm, accessed 18 May 2007); for more on the history of this tradition, see Gerald McCool, *Nineteenth-Century Scholasticism: The Search for a Unity of Method* (New York: Fordham University Press, 1989); and idem, *From Unity to Pluralism: The Internal Evolution of Thomism* (New York: Fordham University Press, 1989). Medieval historical scholarship in the last century has been shaped by the neo-Thomist tradition especially through the work of Étienne Gilson (see e.g., his Gifford Lectures, *The Spirit of Mediaeval Philosophy* [New York: Scribner, 1940]). Although Gilson of course did not consider the mechanistic philosophy that has accompanied modern science to be a step forward, it is worth noting that the story he tells about the rejection of teleology is in many ways very similar to the modern genealogy documented here (*From Aristotle to Darwin and Back Again: A Journey in Final Causality, Species, and Evolution*, trans. John Lyon [Notre Dame, IN: University of Notre Dame Press, 1984]).

[16]This of course represents a shift in understanding not only in terms of the Prime Mover but of efficient causality itself, since this agent can be credited with producing existence rather than just motion. This shift stems from Avicenna, who distinguished between metaphysical and physical efficient causality (see Étienne Gilson, "Avicenne et les origines de la notion de cause efficiente," in *Atti del XII Congresso Internazionale di Filosofia*, vol. 9 [Firenze: Sansoni, 1958], 121-30; Michael E. Marmura, "The Metaphysics of Efficient Causality in Avicenna [Ibn Sina]," in *Islamic Theology and Philosophy: Studies in Honor of George F. Hourani*, ed. idem [Albany, NY: SUNY

shift in causal priority is indicated, for example, by the structure of Aquinas's *Summa Contra Gentiles*, which treats final causality only after demonstrating that God is the efficient cause of all creation. The burden of Aquinas's discussion, then, is to prove that because God is the first efficient cause, he must be the first final cause as well.[17] For that reason he argues that all creatures are directed towards God as their ultimate good.[18] A third change marked by the medieval externalization of final causality in nature is a more anthropocentric account of the universe. Not only are natural bodies directed by God towards God as their ultimate end, they fulfill their purpose by serving the needs of humanity. As Aquinas writes, "the elements are for the sake of the mixed body, the mixed body for the sake of living things, and of these plants are for the sake of animals, and animals for the sake of man. Therefore, man is the end of all generation."[19] This of course comports with certain principles in the Christian doctrine of salvation: Christ becomes human, and Christ saves humanity.

The Scientific Revolution: Against Teleology, Against Aristotle

The Middle Ages sets the stage for the early modern rejection of teleology. The centrepiece of this third chapter of the modernist genealogy is the so-called Scientific Revolution that runs roughly from Copernicus to Newton.[20] During this period, the new

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Press, 1984], 172-87).

[17]*Summa Contra Gentiles* III.1 (trans. in *Basic Writings of Saint Thomas Aquinas*, ed. Anton C. Pegis [New York: Random House, 1945], 2:3-4); cited hereafter as *SCG*.

[18]*SCG* III.17-18 (trans. Pegis, 2:27-29).

[19]*SCG* III.22 (trans. Pegis, 2:36).

[20]According to B.J.T. Dobbs (who is critical of the notion), the Scientific

theorists of scientific inquiry advocated abandoning the search for final causes in nature, which precipitated the collapse of the Aristotelian programme of science as a whole.[21] Descartes, for example, declares that "concerning natural things, we shall not undertake any reasonings from the end which God or nature set Himself in creating these things . . . because we ought not to presume so much of ourselves as to think that we are confidants of his intentions."[22] He also attacks the assumption that natural things are created for humanity's sake for the same kind of hubris, adding, "it would be certainly ridiculous to attempt to use such an opinion to support reasonings about Physics; for we cannot doubt that there are many things which are currently in the world, or which were formerly here and have already entirely ceased to exist, which no man has even seen or known or used."[23] Francis Bacon, unlike Descartes, allows that teleology could be properly explored once it has been restricted to metaphysics.[24] Yet he too advocates the expulsion

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Revolution emerged as a major historiographical concept during the 1940's and 1950's through the seminal works of Alexandre Koyré, Herbert Butterfield, and A. Rupert Hall, and reached canonical status with the publication of Thomas Kuhn's *The Structure of Scientific Revolutions* in 1962 ("Newton as Final Cause and First Mover," in *Rethinking the Scientific Revolution*, ed. Margaret J. Osler [Cambridge: Cambridge University Press, 2000], 28-29).

[21]Margaret J. Osler describes this equation of anti-teleology with modern science as characteristic of the discipline of history of science as it has emerged in the twentieth century ("Whose Ends? Teleology in Early Modern Natural Philosophy," *Osiris* 16 [2001]: 151).

[22]René Descartes, *Principles of Philosophy* I.28 (trans. Valentine Rodger Miller and Reese P. Miller, Synthese Historical Library: Texts and Studies in the History of Logic and Philosophy, vol. 24 [Dordrecht: Reidel, 1983], 14).

[23]Ibid. III.3 (trans. Miller and Miller, 85).

[24]Francis Bacon, *The Advancement of Learning* II.7.3 (ed. Arthur Johnston [Oxford: Clarendon, 1974], 90).

of final causality from the domain of natural philosophy. "For the handling of final causes, mixed in with the rest in physical inquiries, hath intercepted the severe and diligent inquiry of all real and physical causes, and given men the occasion to stay upon these satisfactory and specious causes, to the great arrest and prejudice of further discovery."[25]

Darwinism: Adaption without Ends?

According to the modernist genealogy of teleology, then, the Baconian-Cartesian polemic successfully undermined Aristotelianism as the reigning philosophy of science. The advancements in physics allowed the universe to be explained by mechanistic laws based entirely on what Aristotle called efficient and material causes.[26] A stone falls to the ground not for the sake of anything, but simply because it has mass, and a force called gravity acts upon it. However, the genealogy has to admit a remainder left behind by the Scientific Revolution.[27] For all the innovations of modern physics and astronomy, the life sciences still relied on teleological explanations.[28] The complexity of living creatures of the sort Aristotle had appealed to—the bird assembling its nest, the spider spinning its

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[25]Ibid. II.7.7 (ed. Johnston, 94).

[26]Bacon explicitly equates 'physical causes' with Aristotle's efficient and material causes (Ibid. II.7.3 [ed. Johnston, 90]).

[27]Osler writes, "What we would call the biological sciences—physiology, theories of generation, and natural history—never fit into the received historiography of the Scientific Revolution" (Margaret J. Osler, "The Canonical Imperative: Rethinking the Scientific Revolution," in *Rethinking the Scientific Revolution*, ed. idem, 20).

[28]Dobbs notes that this narrative also has to postulate (as Butterfield did) that the Scientific Revolution was "postponed" in chemistry until the eighteenth century ("Newton as Final Cause," 29).

web—seemed inherently purposive. This had led Kant to declare in his *Critique of Judgment*,

> [I]t is quite certain that in terms of merely mechanical principles of nature we cannot even adequately become familiar with, much less explain, organized beings and how they become internally possible. So certain is this that we may boldly state that it is absurd for human beings even to attempt it, or to hope that some day another Newton might arise who would explain to us, in terms of natural laws unordered by any intention, how even a mere blade of grass is produced.[29]

While Kant argued that purposiveness in living things must be a transcendental *a priori*, other thinkers, such as William Paley in England, continued to regard it as proof of a divine Designer.

All this changed with the arrival of Darwin's *Origin of Species*, of course. Darwin seemed to blow apart any theological arguments from design, and to fill the role of the 'Newton of a blade of grass' Kant had so confidently ruled out.[30] As T. H. Huxley, Darwin's bulldog, remarked in 1864, "That which struck the present writer most forcibly on his first perusal of the 'Origin of Species' was the conviction that Teleology, as commonly understood, had received its deathblow at Mr. Darwin's hands."[31] Darwin, then, ushers in the final chapter of the genealogy of teleology insofar as he opens up the possibility of explaining the appearance of purposiveness or design in living beings by

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[29]Immanuel Kant, *Critique of Judgment* §75, Ak 400 (trans. Werner S. Pluhar [Indianapolis: Hackett, 1987], 282-83).

[30]John Cornell notes that the nomination of Darwin as the life sciences' Newton was made shortly after the publication of the *Origin of Species* by the German scientist Ernest Haekel ("Newton of the Grassblade? Darwin and the Problem of Organic Teleology," *Isis* 77 (1986): 405).

[31]Thomas Henry Huxley, "Criticisms on 'The Origin of Species,'" in *Lay Sermons, Addresses, and Reviews* (New York: Appleton, 1871), 301.

straight-forward, mechanistic causal processes.[32] With his theory of descent with modification by means of natural selection, the adaptation of species can be understood through efficient rather than final causes. As Huxley puts it, "For the teleologist an organism exists because it was made for the conditions in which it is found; for the Darwinian an organism exists because, out of many of its kind, it is the only one which has been able to persist in the conditions in which it is found."[33] Hence, what looks to be a goal-directed process is in fact simply the culmination of a series of incremental and directionless changes.

Evaluating the Genealogy

This conventional division of the history of teleology into four chapters makes up a very different sort genealogy than the one offered by Aristotle. Where Aristotle presents his account such that final causality is itself the end of scientific progress, here one might say that scientific progress spells the end of final causality. Yet it is worth reiterating an Aristotelian sort of question: to what end, this end of ends? The answer justifies referring to this genealogy as 'modernist.' First, it confirms a certain story about

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[32]One might object that this chapter also leaves a remainder of teleology in the realm of the study of human consciousness (i.e., the phenomenon of intentionality). Yet inasmuch as the lines of a reductionist, non-teleological explanation of intentionality seem to be laid down by Darwinian principles (see, e.g., Daniel C. Dennet, *Consciousness Explained* [Boston: Little, Brown, and Co., 1991]; idem, *Darwin's Dangerous Idea: Evolution and the Meanings of Life* [New York: Simon & Schuster, 1995]), it can be regarded as part of this same chapter.

[33]Huxley, "Criticisms," 302.

the emancipation of science from religion.[34] Huxley illustrates this sentiment nicely: "For what is the history of science but the history of the elimination of the notion of creative, or other interferences, with the natural order of the phaenomena which are the subject-matter of that science?"[35] From Bacon and Descartes onwards, teleology is diagnosed as a foreign element introduced into scientific investigation by overriding religious concerns, the pernicious influence of an animistic-turned-monotheistic worldview.[36] Hence, natural science's celebrated independence from religion is signified by its mechanistic, anti-teleological outlook.

Second, this genealogy is also 'modernist' in the sense that it idealizes industrialization and boundless technological advancement. Bacon's remarks at the beginning of the *Novum Organum* have been both prescriptive and prophetic: knowledge is power, concepts are tools.[37] The reason for abandoning final causality, then, is primarily that it has not proved to be particularly useful tool—it does not allow one to *do* anything. This story faults the premodern philosophers for being preoccupied with speculative, teleological 'why'-questions and failing discover the basic workings of the universe. The Scientific Revolution, then, marks the ascent of the more practically-

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[34]Osler, "Whose Ends?" 151.

[35]"The Origin of Species," in *Lay Sermons*, 282-83.

[36]Bacon, e.g., refers to the "corruption of philosophy from superstition and a dash of theology" (*New Organon* I.65 [ed. Lisa Jardine and Michael Silverthorne, Cambridge Texts in the History of Philosophy (Cambridge: Cambridge University Press, 2000), 52])

[37]Ibid. I.2 (ed. Jardine and Silverthorne, 33).

oriented question of 'how'.[38] The object of inquiry becomes the *process* of events, which, unlike their *purposes*, one can manipulate technologically. Contemplative wisdom, the sort which Aristotle thought defined humanity's happiness, is replaced with mastery over nature as the goal of scientific inquiry.[39]

These modernist assumptions are enough to make this conventional genealogy suspect. It is therefore not surprising to find that it has been challenged at a number of points. First, recent scholars researching Aristotle's biological treatises argue that his teleology stems primarily from his concern with organic systems, rather than speculative metaphysics. In doing so they tend to distance it from the 'theologized' versions of the Middle Ages, and to make sympathetic comparisons with modern biology instead.[40] For example, Marjorie Grene writes, "In nature, 'that for the sake of which' a series of events takes place is the intrinsic endpoint in which, if nothing fatally interferes, the series normally culminates. . . . There is absolutely no question of 'purpose' here, either man's

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[38]Gilson provides an excellent summary and criticism of this Baconian perspective in *From Aristotle to Darwin and Back Again*, 22-26.

[39]These 'modernist' assumptions correspond well to what Jean-François Lyotard has diagnosed as the "techno-scientific metanarrative," which he regards as the only myth of progress to survive in postmodernity (*The Postmodern Condition: A Report on Knowledge*, trans. Geoff Bennington and Brian Massumi, Theory and History of Literature, vol. 10 [Minneapolis: University of Minnesota Press, 1984]).

[40]See Marjorie Grene, *A Portrait of Aristotle* (Chicago: University of Chicago Press, 1963); Martha Craven Nussbaum, *Aristotle's* De Motu Animalium (Princeton: Princeton University Press, 1978); Allan Gotthelf and James Lennox, eds., *Philosophical Issues in Aristotle's Biology* (Cambridge: Cambridge University Press, 1987); David Charles, "Teleological Causation in the *Physics*," in *Aristotle's* Physics*: A Collection of Essays*, ed. Lindsay Judson (Oxford: Oxford University Press, 1995), 101-28; André Ariew, "Platonic and Aristotelian Roots of Teleological Arguments," in *Functions: New Essays in the Philosophy of Psychology and Biology*, ed. idem, Robert Cummins, and Mark Perlman (Oxford: Oxford University Press, 2002), 7-32.

or God's. To suppose otherwise is to introduce a Judaeo-Christian confusion of which Aristotle must be totally acquitted."[41] Secondly, some historians of science have criticized the Scientific Revolution as a historiographical concept.[42] Part of this critique involves pointing out that many modern scientists and philosophers such as Leibniz, Gassendi, Boyle, and even Newton continued to appeal to final causes in the realm of physics, which suggests that the dissolution of the Aristotelian programme was not equivalent to the rejection of teleology.[43] Finally, contemporary philosophers of biology have debated whether and to what extent purposes continue to play a role in evolutionary explanations.[44] For example, some have seized upon the term 'teleonomy' as a means of differentiating the legitimate sense in which natural adaptations can be considered teleological from other, illegitimate senses.[45]

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[41]"Aristotle and Modern Biology," in *The Understanding of Nature: Essays in the Philosophy of Biology*, Boston Studies in the Philosophy of Science, vol. 23 (Dordrecht: Reidel, 1974), 76-77.

[42]See David C. Lindberg and Robert S. Westman, eds., *Reappraisals of the Scientific Revolution* (Cambridge: Cambridge University Press, 1990); Steven Shapin, *The Scientific Revolution* (Chicago: University of Chicago Press, 1996); Osler, ed., *Rethinking the Scientific Revolution.*

[43]Osler, "Whose Ends?" 158.

[44]For an overview of the positions and issues involved, consult the following anthologies: Colin Allen, Marc Bekoff, and George Lauder, eds., *Nature's Purposes: Analyses of Function and Design in Biology* (Cambridge, MA: MIT Press, 1998); David J. Buller, ed., *Function, Selection, and Design*, SUNY Series in Philosophy and Biology (Albany, NY: SUNY Press, 1999); and Ariew, Cummins, and Perlman, eds., *Functions.*

[45]Marjorie Grene and David Depew note that this term was coined by Colin Pittendrich and adopted by Ernt Mayr especially (*The Philosophy of Biology: An Episodic History*, The Evolution of Modern Philosophy [Cambridge: Cambridge University Press, 2004], 315).

It is the suggestion of the present work that the modernist genealogy of teleology must also be reconsidered at the point of its second chapter, the Middle Ages. Since a survey of the variations of teleology across the six hundred-plus years of medieval history would be an impossibly large project, it will focus more particularly on a single counter-example to the conventional picture: the work of the early fourteenth-century Franciscan William of Ockham. Ockham's often radical modifications of final causality demand his inclusion into even a cursory history of the concept. Unlike the supposed medieval view, Ockham does not simply relativize Aristotle's art-nature analogy by considering all creatures as having their ends fixed by God. Neither does he restore the analogy to a more orthodoxly Aristotelian position. Instead, Ockham draws a sharp distinction between voluntary and natural agency, which results in two very different uses of final causality. On the one hand, the way in which final causes operate in voluntary agents cannot compromise their freedom. On the other hand, the way they operate in natural agents cannot explain their necessity. The principal thesis developed here is that Ockham negotiates the radical difference between the causality of voluntary and natural agents by positing a new analogy altogether, comparing it to the difference between will and intellect.

The argument proceeds as follows. The first chapter examines Ockham's understanding of will and intellect, their respective activities of loving and understanding, and their (relative and ontological) status within the soul. While Ockham scholarship has begun to delve into his doctrine of the will and its so-called 'liberty of indifference' on

the one hand,[46] and his 'direct realist' account of cognition on the other,[47] the research presented here is unique in putting the two together in order to evaluate their apparent disjoint. It does so by laying Ockham's account against the backdrop of the 'Franciscan tradition' as it takes shape in the late thirteenth and early fourteenth centuries. In particular, it will show how Ockham is heir to certain themes found in his Franciscan predecessor, John Duns Scotus—notably, the way in which Scotus explains the superiority of willing over knowing by contrasting freedom and necessity. From this analysis Ockham's account of the teleology of free activity becomes clear. In short, he defines the final cause as that which is loved by an agent, thereby uniquely making the will's freedom to love anything at all a precondition for final causality.

While Ockham's account of voluntary agency comes out in his discussions about the will and intellect, his understanding of natural agency remains yet to be explored. To that end, the second chapter turns from Ockham's philosophical psychology to his natural

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[46]E.g., Calvin Normore, "Picking and Choosing: Anselm and Ockham on Choice," *Vivarium* 36 (1998): 23-39; and Marilyn McCord Adams, "Ockham on Will, Nature, and Morality," in *The Cambridge Companion to William of Ockham*, ed. Paul Vincent Spade (Cambridge: Cambridge University Press, 1999), 245-72.

[47]Much of this research has concentrated on Ockham's distinction between intuitive and abstractive cognition; see, e.g., John F. Boler, "Ockham on Intuitive Cognition," *Journal of the History of Philosophy* 11 (1973): 95-106; Gordon Leff, *William of Ockham: The Metamorphosis of Scholastic Discourse* (Manchester: Manchester University Press, 1975), 2-77; Marilyn McCord Adams, *William Ockham*, 2 vols. (Notre Dame, IN: University of Notre Dame Press, 1987), 495-550; Katherine H. Tachau, *Vision and Certitude in the Age of Ockham: Optics, Epistemology, and the Foundations of Semantics 1250-1345*, Studien und Texte zur Geistesgeschichte des Mittelalters, band 22 (Leiden: Brill, 1988); Eleonore Stump, "The Mechanisms of Cognition: Ockham on Mediating Species," in *The Cambridge Companion to Ockham*, ed. Spade, 168-203; and Elizabeth Karger, "Ockham's Misunderstood Theory of Intuitive and Abstract Cognition," in *The Cambridge Companion to Ockham*, ed. Spade, 204-26.

philosophy. Despite the vast expansion of Ockham scholarship in the last thirty years,[48] this area of his thought continues to be underappreciated; although Ockham himself dedicated no less than three separate treatises to Aristotle's *Physics*,[49] the last century has seen the publication of only two monographs dealing with Ockham's natural philosophy in particular.[50] This chapter contributes to redressing this disregard by assessing the role teleology plays in natural causality on Ockham's account—or, more accurately, the lack thereof. It finds that Ockham consistently avoids any assumption of final causes to explain natural phenomena, preferring instead to appeal to their necessity. This puts him at a fair distance from both Aristotle's 'internalist' natural teleology and the 'externalist,' theologized versions of the conventionally understood 'medieval' view. The chapter closes by elucidating the analogical connection between Ockham's by now obviously sharp contrast between voluntary and natural agency and that between will and intellect.

Lastly, this work concludes with a revaluation of the genealogy of teleology. It argues that Ockham's unique position upends the conventional picture of medieval period, and in doing so, disrupts the narrative arc of the genealogy as a whole. This opens up the space for a more nuanced—and less ideological—understanding of the

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[48]Undoubtedly this has been catalyzed by the recent completion of the critical edition of Ockham's theological and philosophical works by the Franciscan Institute at St. Bonaventure University (see Gideon Gál and Rega Wood, "The Ockham Edition: William of Ockham's *Opera Philosophica et Theologica*," *Franciscan Studies* 51 [1991]: 83-101).

[49]They are: *Summula Philosophiae Naturalis*, *Brev. Phys*, and *Expos. Phys.*

[50]Herman Shapiro, *Time, Motion, and Place According to William of Ockham* (St. Bonaventure, NY: Franciscan Institute, 1957); and André Goddu, *The Physics of William of Ockham*, Studien und Texte zur Geistesgeschichte des Mittelalters, band 16 (Leiden: Brill, 1984).

contested relationship between 'objective' science, teleology, and 'value-laden' disciplines like metaphysics and theology. The conclusion ends with some constructive suggestions of how an Ockhamist approach to teleology might continue to be useful in that regard.

CHAPTER ONE

OCKHAM ON WILL AND INTELLECT

The Franciscan Philosophy of Love

The study of the 'history of ideas' has often been taken with the question of a so-called 'voluntarist turn' that took place at some point in the later Middle Ages. In her study entitled *Virtues of the Will*, Bonnie Kent offers some clarifications about the term, both its meaning and reference:

> If 'voluntarism' signifies little more than a general emphasis on the affective and volitional aspects of human nature, then it originated with the first Franciscan masters at Paris. . . . If 'voluntarism' signifies a strong emphasis on the active character of the will, the claim that the will is free to act against reason's dictates, and the conviction that moral responsibility depends on this conception of the will's freedom, then it began with Bonaventure's successors. Finally, if 'voluntarism' signifies a strong emphasis on God's freedom (or 'absolute power') to will anything not involving a contradiction, then it probably began later still, with Duns Scotus or William of Ockham.[1]

A couple of relevant points come out in Kent's sketch. The first to be noted is that what falls under the province of 'voluntarism' is not a universal development within scholasticism, but is associated with a particular group: the Franciscan mendicant order, in its expression at the universities at Paris and Oxford. In addition, Kent's three-fold typology suggests that 'voluntarism' does not mark out a single turning-point in history, but instead refers to a cluster of emphases that emerges and crystallizes over generations.

I would suggest, then, that the phenomenon described only obscurely as 'voluntarism' is what might best be called a 'tradition' of inquiry, concentrated

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[1]Bonnie Kent, *Virtues of the Will: The Transformation of Ethics in the Late Thirteenth Century* (Washington, DC: Catholic University of America Press, 1995), 95.

institutionally around a particular organization and developing over a particular period of time.[2] Rather than speaking of 'voluntarism' as such, then, it is more advantageous to refer in the first place to 'the Franciscan tradition' and subordinately to 'voluntarism' as a conceptual characteristic distinguishing this tradition from others. However, it may very well be that there are better terms available for this conceptual distinctiveness, insofar as 'voluntarism' exclusively denotes '*voluntas*', i.e., the will. This can be misleading, since the Franciscans' emphasis on the will is not just for its own sake, but is intimately connected to other values such as contingency in metaphysics and responsibility in ethics. Furthermore, since the term '*voluntas*' did not become dominant in scholastic discourse until the 1270's,[3] there is also a danger of failing to recognize the continuity of thought that spans across changes in vocabulary. Following Mary Beth Ingham and others,[4] therefore, it is preferable to speak of the conceptual distinctiveness of the Franciscan

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[2]This is not to attribute to the emergence over time of 'voluntarism' a kind of 'historical organicism' or Hegelianism, whereby an idea already present from the beginning in an inchoate form merely unfolds into its full manifestation. Nor is it to suggest that any of the cluster of ideas revolving around 'voluntarism' were not disputed by the Franciscans themselves. The point here is not that the Franciscans styled themselves as pursuing a common project (indeed, this is just the sort of misreading the term 'voluntarism' invites); rather, following Alasdair MacIntyre, one should view a philosophical "tradition" as the embodiment of a live argument—but this also entails that the agreement (often unspoken) that allows the argument to be productive is of utmost importance (see e.g., Alasdair MacIntyre, *Whose Justice? Which Rationality?* [Notre Dame, IN: University of Notre Dame Press, 1988], 349-403).

[3]Prior to the 1270's, the preferred term is *liberum arbitrium*, which Kent translates as 'free decision' (*Virtues of the Will*, 99).

[4]Ingham's research on Scotus calls attention to importance of "the basic elements of Franciscan spirituality, namely, the centrality of love and the importance of trinitarian generosity" ("Duns Scotus, Morality and Happiness: A Reply to Thomas Williams," *American Catholic Philosophical Quarterly* 74 [2000]: 174).

tradition as a 'philosophy of love', rather than as voluntarism. This allows all the other philosophical concepts that emerge within the Franciscan tradition to be viewed as directed toward the same end: talking properly about the reciprocal love between God and God, and God and creation. Insofar as the will is considered to be the faculty of loving, it is to be found at the very heart of Franciscan thought.

Influences Philosophical and Religious

In enumerating the variety of philosophical and religious influences that shaped the Franciscan sensibility, it is only appropriate to begin with the founder of the order, St. Francis himself. Francis's commitment to simplicity and poverty and his exemplification of charity were widely viewed as uniquely imitating that of Christ. His concern and thankfulness for the beauty and diversity of all God's creatures, each individually loved and individually lovable,[5] were well attested in various stories of him communing with animals, and in his celebratory *Canticle of Brother Sun and Sister Moon.* After the greatest of the early Franciscan masters, Bonaventure, was commissioned to write an official biography for the order, the spiritual journey of St. Francis was propagated as a model for its members to follow.[6]

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[5]Scotus's and Ockham's attentiveness to singularity—which they hold in common despite their metaphysical differences (Scotus's realism vs. Ockham's nominalism)—are examples of sophisticated philosophical arguments bearing the stamp of Francis's concern for the individual creature (this was the framework offered in a graduate seminar I took with Robert Sweetman in spring 2006; see his "Univocity, Analogy, and the Mystery of Being according to John Duns Scotus," in *Radical Orthodoxy and the Reformed Tradition: Creation, Covenant, and Participation* , ed. James K. A. Smith and James H. Olthuis [Grand Rapids: Baker Academic, 2005], 86-87). For more on Ockham and singularity, see the section, "Ockham: The Intellect, Naturalized," pp. 57-69 below.

[6]Bonaventure, *The Life of Saint Francis* (in *The Soul's Journey into God; The*

In order for Francis's vision to be expressed within the scholastic discourse of the medieval universities, a philosophically rigorous account had to be developed by his followers. Franciscans critically appropriated and synthesized a variety of intellectual resources which allowed them to formulate their characteristic voluntarism—the concept of will being the most important philosophical tool for thinking about love both divine and human. If it is true that one of the most distinctive marks of this Franciscan philosophy of love to emerge in the 1270's was its arguments for the superiority of the will over the intellect, who were the relevant predecessors whose influence made such a discussion possible?

Lending urgency to this question is the realization that Aristotle, whose technical apparatus was widely appropriated in the Latin West after the translation of his works and the Arabic commentaries on them in the twelfth century, did not possess anything like a doctrine of the will. If the scholastics were able to discuss the problem of the will within a broadly Aristotelian understanding of ethics (i.e., the eudaimonism of the *Nichomachean Ethics*), then they had to draw upon resources aside from Aristotle for support. The closest thing resembling a will in Aristotle's psychology is his concept of *prohairesis*, a faculty mediating between desire on the one hand and the force of reason on the other. The concept of *prohairesis*, however, is constrained within the Aristotelian philosophical system from developing into a full-blown concept of will on two counts. First, the power of *prohairesis* is restricted to the ability to choose between different

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Tree of Life; The Life of St. Francis, trans. Ewert Cousins, The Classics of Western Spirituality [New York: Paulist, 1978]; see also the translator's introduction, 37-42). The *Canticle of Brother Sun* is printed on 27-28.

means to an end. Significantly, the end to which the means are directed—happiness—is not within the agent's choice. In this respect, human beings are no different from other animals.[7] Second, Aristotle's natural philosophical axiom, 'everything that is moved is moved by another,' militates against any understanding of the will as a self-determining power.[8]

If Aristotle's influence is muted in the Franciscans' discussions of willing, then their other major philosophical source of inspiration, Augustine, is certainly amplified. Many scholars have found in Augustine the first philosophy of the will.[9] This is the verdict of Richard Sorabji, for example, who argues that the concept of will should be viewed as a way of organizing a number of previously disparate philosophical themes into a single concept. Some of the themes he mentions are: an appetite associated with reason and distinguished from the sensitive appetite; the notion of will-power; the seat of freedom and moral responsibility; its ubiquity in all actions; as well as some criterion for distinguishing between its proper and defective functioning. Aristotle, as already noted, picks up on the 'rational appetite' theme, but he does not associate it with freedom and moral responsibility, nor does he consider it to be an active power that causes the motion of the agent (a 'will-power'). Likewise, Plato's notion of *thumos* represents the theme of

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[7]E.g., Aristotle, *On the Soul* III.10, 433a8-433b32 (trans. Barnes, 688-89); see also Hannah Arendt, *The Life of the Mind*, (New York: Harcourt, 1978), 2:55-62; and the remarks of Richard Sorabji, *Emotion and Peace of Mind: From Stoic Agitation to Christian Temptation* (Oxford: Oxford University Press, 2000), 325-27, mentioned below.

[8]*Physics* VII.241b23-25 (trans. Barnes, 407).

[9]See for example the chapter on Augustine (chap. 10) in Hannah Arendt's historical survey of the doctrine of the will in *The Life of the Mind*, 2:84-110.

will-power without that of freedom, whereas the Stoics tend to emphasize freedom and moral responsibility but see the motivating force of human activity in terms of reason.[10]

According to Sorabji, then, each of these themes can be found in isolation from the others in various thinkers in Greek and Roman philosophy, but Augustine has the distinction of being the first to bring them together under a single concept. A number of the novel philosophical moves he makes in uniting them have a large impact on later medieval developments. To begin with, there is his account of the problem of the brokenness of the will, found especially in Book VIII of the *Confessions*. Drawing upon Paul's discussion of two laws in the epistle to the Romans, Augustine describes how every desire he has to do one thing is accompanied by the desire to do the opposite. There is an inherent duality in the power of the will: it is always equally capable of acting positively (to will, *volle*) or negatively (to nill, *nolle*) with respect to the same thing.[11]

For Augustine, this is a lamentable state, a "disease of the mind"[12] brought about by sin, insuring that the will is constantly restless. Famously, Augustine argues that the will is finally only able to find its rest in God.[13] The brokenness of the will is healed by being 'transfigured' into love, which Augustine describes as a "glue" that binds the will

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[10]Sorabji, *Emotion and Peace of Mind*, 321-37. Sorabji's careful analysis goes into much greater detail than I can explore here.

[11]"So there are two wills. Neither of them is complete, and what is present in the one is lacking to the other" (*Confessions* VIII.9 [trans. Henry Chadwick (Oxford: Oxford University Press, 1991), 148]).

[12]Ibid.

[13]As memorable line in opening chapter of the *Confessions* goes, "our heart is restless until it rests in you" (I.1 [trans. Chadwick, 3]).

to its object.[14] God is the only proper object of love, and hence the only thing capable of bringing the will to rest. Here Augustine distinguishes between use (*uti*) and enjoyment (*frui*): "to enjoy something is to cling to it with love for its own sake. To use something, however, is to employ it in obtaining that which you love."[15] With this distinction Augustine is able to set up a hierarchy of values akin to that of Aristotle in the *Nichomachean Ethics*.[16] Because God is uniquely worthy of being loved for his own sake, he is the only thing that can be truly enjoyed. All creatures, including ourselves, ought to be loved according to the extent that they are willed to enjoy God as well—with, that is, a love appropriate for a type of use rather than enjoyment.[17]

Later medieval discussions of free will pick up the notion of two active functions of the will, one negative and one positive, although this is no longer intimately connected to the post-lapsarian experience as it is in Augustine. Augustine's distinction between use and enjoyment is also immensely influential; as Thomas M. Osborne claims, "the doctrine of ordered love is the driving force behind medieval ethical theories. Even the

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[14] Augustine, *On the Trinity* X.8 (ed. Gareth B. Matthews, trans. Stephen McKenna, Cambridge Texts in the History of Philosophy [Cambridge: Cambridge University Press, 2002], 53); this 'transfiguration' of the will through love is the account of Augustine offered in Arendt, *Life of the Mind*, 2:100-04.

[15] *On Christian Doctrine* I.4 (trans. D. W. Robertson, Jr., Library of Liberal Arts [Indianapolis: Bobbs-Merril, 1958], 9).

[16] The difference, however, should not be overlooked; one might say that Augustine's account is focused on the object of love, whereas Aristotle's account is on the subject doing the activity.

[17] Augustine, *On Christian Doctrine* I.3 (trans. Robertson, 9).

virtues are subordinated to love."[18] Finally, Augustine is also to be credited for cementing the connection between human freedom and willing, especially in his early treatise, *On the Free Choice of the Will.*[19]

Nevertheless, it would be making too strong a claim to say that the voluntarist developments in the Franciscan tradition were expressions of an orthodox Augustinianism (to then be contrasted with the supposed 'Aristotelianism' of Aquinas and other Dominicans). While the *Confessions* contains a rich description of a broken will at war with itself, Augustine's understanding of the will's relation to the other faculties of the soul is purely harmonious. His trinitarian psychology is worked out in the context of *On the Trinity*, where the will is that which unites the intellect and memory through love, just as love is that which unites lover and beloved.[20] Because Augustine's intent is to discover how the normative condition of the soul is reflective of the divine council, he does not admit the possibility of conflict between the faculties. When the soul moves, it moves as a unity. Thus for Augustine it is not the will in isolation that is treated as a self-determining power so much as the soul itself.

For the Franciscans to ask whether the will is nobler than the intellect, and furthermore to supply solutions to this answer that appealed to the will's ability to direct the intellect and even reject its recommendations, required something more than just

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[18]*Love of Self and Love of God in Thirteenth-Century Ethics* (Notre Dame, IN: University of Notre Dame Press, 2005), 21.

[19]In Augustine, *The Teacher; The Free Choice of the Will; Grace and Free Will*, trans. Robert P. Russell, The Fathers of the Church, vol. 53 (Washington, DC: Catholic University Press of America, 1968).

[20]Cf. *On the Trinity* IX.5 (ed. Matthews, 30-31) and XI.3 (ed. Matthews, 66).

Augustine. Following the suggestions of other medieval historians, one may suggest three other influences at work that make the conflict of the faculties conceivable. First, there is John of Damascus's distinction (borrowed from Maximus Confessor and ultimately derived from Stoicism) between the will as 'rational' and as 'natural' appetite.[21] Initially employed to distinguish between divine and human wills in Christ, later thinkers tended to interpret it as a contrast between the will understood as natural desire for one's own good and understood as a free power.[22] This sets up the 'natural inclination' of the will as something that could possibly be overridden in some cases.

Another possible philosophical source is the mystical neo-Platonism of the pseudo-Dionysius. His works contain rich descriptions of the volitional or affective aspects of the soul's ascent to God.[23] It has been suggested that traces of a Dionysian tradition can be detected wherever the will is viewed as more than a merely passive power.[24]

A third influence can be found in the writings of Bernard of Clairvaux. As

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[21]See *The Orthodox Faith* II.30 (in John of Damascus, *Writings*, trans. Frederic H. Chase, Fathers of the Church, vol. 37 [New York: Fathers of the Church, 1958], 263-66). According to Sorabji, Maximus Confessor's conception of 'natural will' is a reinterpretation of the Stoic doctrine of *oikeiosis*, a natural inclination for one's own good which is distinct from reason; Sorabji also claims that medieval discussions that treat the will as a natural desire for self-preservation bear a Stoic pedigree (*Emotion and Peace of Mind*, 337-39).

[22]Kent, *Virtues of the Will*, 112.

[23]See *Pseudo-Dionysius: The Complete Works*, trans. Colm Luibhéid, The Classics of Western Spirituality, no. 54 (New York: Paulist Press, 1987).

[24]See, e.g., Michael Sylwanowitz, *Contingent Causality and the Foundations of Duns Scotus'* Metaphysics, Studien und Texte zur Geistesgeschichte des Mittelalters, band 51 (Leiden: Brill, 1996), chap. 5.

Bonnie Kent has pointed out,[25] in *On Grace and Free Choice* Bernard claims (a) that the will is the source of freedom,[26] (b) that the will can act contrary to the dictates of reason;[27] and furthermore, (c) that if the will were necessitated to act by the dictates of the reason, it would not be free, and no moral responsibility would be involved.[28] Although Bernard's understanding of 'will' differs from those developed later on in the universities, his influence can be detected when the subject of the will's relation to the intellect becomes the site for defending claims about human freedom.

The 1270's

If the philosophical resources mentioned above can be seen as reagents combining to produce a 'Franciscan tradition' with a distinct shape to its approach to the will, then the catalyst for this reaction was certainly the two sets of condemned propositions issued by bishop Stephen Tempier. Concerned with the philosophical teachings of the Arts faculty at the university of Paris, in 1270 Tempier listed 13 propositions that were considered heretical. Seven years later, a much more extensive list of 219 propositions

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[25]Kent, *Virtues of the Will*, 112-13; she says that the influence of Bernard on these medieval discussions was first pointed out by San Cristobal-Sebastian.

[26]"[W]here the will is, there is freedom" (Bernard of Clairvaux, *On Grace and Free Choice* I.3 [trans. Daniel O'Donovan (Kalamazoo, MI: Cistercian, 1988), 56]).

[27]"Not that [the will] is moved invariably by reason—indeed it does many things through reason against reason, or, in other words, through the medium of reason as it were, yet contrary to its counsel and judgment—but it is never moved without reason" (Ibid. II.3 [trans. O'Donovan, 58]).

[28]"Reason is given to the will for instruction, not destruction. It would be to the destruction of the will, however, were it to impose any necessity on it which would prevent it from moving freely in accordance with its judgment. . . . The consent of this will, voluntary, of course, and not necessary, proves us to be just or unjust, and also, meritedly, makes us happy or miserable" (Ibid. II.4 [trans. O'Donovan, 58-59]).

was compiled with the help of Henry of Ghent and others and was disseminated. While both lists come across as a mish-mash of unrelated philosophical doctrines, both were certainly aimed in part at any philosophical doctrines smacking of necessitarianism, of a world that could not be other than it is. This extends to certain propositions concerning the will. For example, "that the will of man wills or chooses out of necessity" and "that free will is not an active but a passive power and that it is moved in a necessary manner by the appetite" were included in the first condemnations.[29] The second condemnations include such propositions as:

39. That from a previous act of will nothing new can proceed unless it is preceded by a change.
128. That that which by its nature is not determined to being or non-being is not determined except by something that is necessary with respect to itself.
131. That it is impossible for the will not to will when it is in the disposition in which it is natural for it to be moved and when that which by nature moves remains so disposed.
135. That in itself the will is undetermined to opposites, like matter, but it is determined by a desirable object as matter is determined by an agent.
159. That man's will is necessitated by knowledge, like the appetite of a brute.[30]

Although the condemnations were directed specifically at the masters in the Arts faculty,[31] their consequences reached considerably further. Theologians prior to the

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[29]The full list can be found in John F. Wippel and Allan B. Wolter, eds., *Medieval Philosophy: From St. Augustine to Nicholas of Cusa*, Readings in the History of Philosophy (New York: Free Press, 1969), 366.

[30]The entire document including Tempier's letter and all 219 propositions (organized thematically) is translated in Ralph Lerner and Muhsin Mahdi, eds., *Medieval Political Philosophy: A Sourcebook* (New York: Free Press, 1963), 335-54.

[31]I leave aside here the question of the degree to which the condemnations were also directed towards theology faculty (particularly certain doctrines held by Aquinas, including hylomorphism), for the reason that Tempier only mentions "students of the Arts" in his letter introducing the 219 propositions (Ibid., 337).

1270's tended to discuss 'free decision' (*liberum arbitrium*) rather than 'free will', which emphasized the harmony of the faculties.[32] Nevertheless, certain differences can still be detected among them: whereas Aquinas's doctrine of the will resembles Aristotle's notion of *prohairesis* in treating it as a passive potency, Bonaventure is more Dionysian in outlook, ascribing the will an active potency.[33] But these differences separating the Dominican and the Franciscan (who were contemporaries) became much more pronounced in their successors after the condemnations. The Franciscan William de la Mare's *Correctorum fratris Thomae* accused Aquinas's teaching in the *Summa Theologiae* of going against Tempier's condemnations by (among other things) denying free will (*libera voluntas*). This provided a flash-point for the division between Dominicans and Franciscans. The Dominicans defended Aquinas's teaching against William's charge and argued that the intellect is nobler than the will, while the Franciscans took the opposing view.[34]

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[32] Kent, *Virtues of the Will*, 99.

[33] Ibid., 117.

[34] As Kent writes, "Other earmarks of voluntarism [than the belief that the will is nobler than the intellect] are the claims that beatitude or happiness consists more in activity of the will than in an activity of intellect, that man's freedom derives more from his will than his rationality, that the will is free to act against the intellect's judgment, and that the will, not the intellect, commands the body and the other powers of the soul. William de la Mare defended all these theses against Thomas's arguments to the contrary, and later Franciscans tended to adopt, albeit with varying degrees of conviction, the same positions as William. These doctrines can therefore be taken as points of division between Franciscan thought and Thomism, or more generally, between voluntarism and intellectualism" (Ibid., 96).

An Example: The Eckhart-Gonsalvo Exchange

Before moving to Duns Scotus's theory of the will to complete the background sketch for studying Ockham's own theory, it is worth looking at an example of the Franciscan-Dominican polarity over the status of the will. An especially illuminating one can be found in a disputation that took place at the university of Paris around 1302. The two masters involved were Meister Eckhart, a follower of Aquinas who would later be charged with heresy for the mysticism in his preaching,[35] and the Franciscan Gonsalvo of Spain.[36]

Gonsalvo and Eckhart debate over the question of "whether praise of God in heaven is more excellent than love of him on earth."[37] The way the question is framed allows them to weigh in on the respective merits of understanding and willing. Interestingly, both thinkers come out emphasising that the higher faculty is that which is best (or uniquely) capable of uniting itself with its object, yet this results in their taking opposing positions. Picking up on a Thomistic line of thought,[38] Eckhart argues that the

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[35]See the papal bull and selections from Eckhart's response in *Meister Eckhart: The Essential Sermons, Commentaries, Treatises, and Defense*, trans. Edmund Colledge and Bernard McGinn, The Classics of Western Spirituality (Mahwah, NJ: Paulist Press, 1981), 71-81.

[36]This disputation is recorded as Eckhart's third Parisian Question in *Parisian Questions and Prologues*, trans. Armand A. Maurer, Mediaeval Sources in Translation, no. 15 (Toronto: Pontifical Institute of Mediaeval Studies, 1974), 55-67.

[37]Ibid., 55.

[38]See *Summa Theologicae* I.82.3 (trans. Pegis, 1:780-81); hereafter cited as *ST*.

intellect knows all things as they are in themselves—i.e., as they exist.[39] The will, by contrast, only wills things under the aspect of good. But, Eckhart argues, 'the good' is less fundamental than 'being' because something is good only inasmuch as it exists.[40] Eckhart thus sees the activity of the intellect as a kind of conformity to the thing known, which means that understanding God is a kind of deification.[41]

If Eckhart's position emphasizes the way in which the intellect brings its object into itself, Gonsalvo's emphasizes just the opposite: how the will in loving goes beyond itself towards its object. While the intellect understands its object only insofar as it is thought, the will loves its object as it is in itself. Gonsalvo offers a refutation of Eckhart's argument that the will considers its object under a less simple aspect than does the intellect, but for him it is beside the point. According to Gonsalvo, the will does not love an object of the intellect anyway, but the actual thing in the world.[42] This entails that any prioritization of understanding over loving God amounts to idolatry, because it puts the perfection of the lover's finite understanding ahead of the Beloved's infinite goodnesss. "This would be the case if one chose the vision of God in heaven in preference to the love of God on earth, for he would love something other than God,

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[39]Eckhart radicalizes this claim in his sermons by saying that because the intellect conforms itself to the thing as it is in itself, it does not consider the thing under the aspect of being, either (Maurer, introduction to *Parisians Questions and Prologues*, 23).

[40]*Parisian Question* 3, 10th argument of Eckhart (trans. Maurer, 60).

[41]Ibid., 4th argument of Eckhart (trans. Maurer, 59).

[42]"Knowledge is an essential requirement for the movement of the will, but it does not move as an end, for then knowledge would be the essential and primary object of desire, which is false" (Ibid., contra 11th argument [trans. Maurer, 65]).

namely the vision of God, more than God, and he would prefer it to him, because one who loves the vision of God more than the love of him would rather be without the love than the vision." For Gonsalvo, we become more like God by loving him than by understanding him. His solution to the disputation brings out a characteristically Franciscan emphasis on love that is both ecstatic—going beyond the lover—and generous.

Duns Scotus's Account of the Will[43]

Duns Scotus's celebrated theory of the will picks up on a number Franciscan themes that come out in the Eckhart-Gonsalvo exchange, yet he takes them in path-breaking directions. In particular, he develops the theme of the will's freedom in a way that emphasizes that the world, as it has been created, and the decisions that we as free creatures have made, could have been otherwise.[44] As Hannah Arendt has said, there may have been philosophers of the will prior to Scotus, but Scotus is certainly the first

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[43]Parts of this section are based on a paper I presented at the 12th Annual Graduate Student Conference at Concordia University entitled "Duns Scotus on the Fall of the Devil and the Ends of Happiness." I would like to thank Martin Pickavé for his comments on an even earlier version.

[44]The relationship between Gonsalvo and Duns Scotus is significant. It is likely that Duns Scotus was a bachelor at Paris when this disputation took place, and after Gonsalvo became the minister general of the order, he was responsible for Scotus's appointment as regent master of theology at Paris a few years later (*Duns Scotus, Metaphysician*, ed. William A. Frank and Allan B. Wolter, Purdue University Press Series in the History of Philosophy [West Lafayette, IN: Purdue University Press, 1997], 4-5).

philosopher of contingency.[45] The point I wish to add is that Scotus's metaphysical commitment to contingency is worked out in conversation with his ethics. Without seeing the connections between them, one may fail to notice how Scotus continues to understand the will teleologically even in its freedom.[46] In order to keep them together, I will look primarily at two questions, one ethical, one metaphysical, that look at the freedom of the will. The first asks whether the will necessarily wills happiness.[47] The second asks whether the will is a rational potency—in other words, whether the will is moved necessarily.[48]

Willing To Will Happiness

Characteristic of his appellation, the Subtle Doctor's response to the first question begins with a distinction. He states that the will has a twofold appetite, one that is natural and another that is free. The natural appetite is that by which the will desires its own perfection, just as indeed any nature desires its perfection. Following the *Nichomachean Ethics*, he equates this perfection with its end, namely happiness. In terms of its natural appetite, then, the will does necessarily desire happiness above all. Scotus claims that it does so necessarily because "a nature could not remain a nature without being inclined to

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[45]Arendt, *Life of the Mind*, 2:133.

[46]Sylwanowitz's otherwise careful study for example fails to do this (*Contingent Causality*, chap. 5).

[47]*Ordinatio* IV, suppl., d. 49, qq. 9-10 (trans. in *Duns Scotus on the Will and Morality*, ed. Allan B. Wolter [Washington, DC: Catholic University of America Press, 1986], 183-97; cited hereafter as *DSM*).

[48]*Questions on the Metaphysics of Aristotle* IX.15 (trans. Girard J. Etzkorn and Allan B. Wolter, Franciscan Institute Publications Text Series, no. 19 [St. Bonaventure, NY: Franciscan Institute, 1997-98], 2:603-25).

its own perfection. Take away this perfection and you destroy the nature."[49]

Granting that the natural appetite of the will necessarily desires happiness above all, Scotus adds that nevertheless the will does not will happiness always but only for the most part. When the will wills happiness, therefore, it does so contingently rather than necessarily. How is this possible?

According to Scotus, the natural desire for perfection is not an "elicited act" of the will, but only an "inclination" that the will is likely to follow in eliciting an act. Since the natural desire for perfection must necessarily exist in the will at all times, and given that the will sometimes elicits acts contrary to its natural appetite, it follows that the natural appetite cannot be itself an elicited act. Otherwise, in those moments of willing contrary to the natural appetite, there would exist two opposing acts in the will—an impossibility, given that the will is a single, unified power in the soul.[50]

Scotus compares the way that the will follows its natural inclination to the manner in which it is habituated by a habit.[51] Elsewhere in the *Ordinatio* he states that the natural appetite does not tend towards its perfection but is the tendency itself—which is to say, it is a passive capacity to receive something rather than a capacity to act.[52] He also compares it to a first perfection.[53] In every description his intent is the same: to contrast

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[49] *Ord.* IV, suppl., d. 49, qq. 9-10 (*DSM*, 185).

[50] Ibid.

[51] Ibid. (*DSM*, 191).

[52] *Ord.* III, d. 17 (*DSM*, 183).

[53] *Ord.* II, d. 6, q. 2 (*DSM*, 473).

the natural appetite with the active power of the will to determine itself. For Scotus, the desire for perfection may explain the nature of the will, but it fails to fully explain the actions of the will. The will, even when it elicits acts for the sake of happiness, wills freely.

At this point in his discussion, Scotus raises a doubt: could someone will to be miserable, or nill happiness? If not, then it would seem that misery is nilled necessarily, and therefore happiness is also willed of necessity. Scotus replies that this objection rests on a non-sequitur. Just because I cannot will misery does not mean I must necessarily *nill* it. The absence of willing is just not the same as nilling. Following Augustine's distinction, Scotus sees nilling as a positive act elicited by the will just as much as willing is.[54]

Were the will determined to act in accordance with its natural appetite, it would have to elicit an act of nilling or willing in regard to the object under consideration. The response would be automatic save for some external interruption. But the freedom of the will lies precisely in its control over the elicitation of its own acts. That is to say, in every act of willing (or nilling), the will *wills its act of willing*, and therefore always retains the option to not will it. Thus, while it is impossible that I will misery (or rather, that I will myself to will misery), it does not follow that I must will myself to nill misery. I may choose to not will at all, and go on to elicit an act towards some object other than

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[54]*Ord.* IV, suppl., d. 49, qq. 9-10 (*DSM*, 191-93); see also *Ord.* II, d. 6, q. 2: "I say there is a twofold act of the will, namely, to like and to dislike, for dislike is a positive act of the will whereby it turns away from the distasteful and shuns the inconvenient, whereas to like or love is the act whereby it accepts some appropriate or suitable object" (*DSM*, 463).

misery. Likewise, while it is impossible to nill happiness, I still retain the options of willing it or not willing it.[55]

It is important to note here that by attributing the will's freedom to its ability to will itself, Scotus has attributed a level of self-reflexivity comparable to that only previously attributed to the intellect. For example, Thomas Aquinas argues that because the human intellect in essence is potential with respect to knowledge, it can only be known through its act of understanding.[56] The intellect thus knows itself when it has knowledge of sensible things—which is to say, the intellect understands itself to understand.[57] For Scotus, the will's perfection on this score is at least equal to that of the intellect. The will, in willing, wills itself to will. And this means that (unlike the intellect) it controls whether it elicits an act or not.

For Whose Sake: the Dual Affections of the Will

Because of the will's self-reflexive willing, therefore, it is able to check its natural appetite for happiness. Yet, it must be admitted here that this reflexivity of the will is really only a *sine qua non* of its freedom. In order to decide not to will in accordance with its natural appetite for happiness, the will needs another inclination to follow. The reason for this is that the second-order level of *willing to will* must itself be willed to some end. Hence, pending any other inclination, the will would still only elicit acts based

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[55]*Ord.* IV, suppl., d. 49, qq. 9-10 (*DSM*, 193). Hannes Möhle has brought out the connections between the will's freedom and its "two-tiered character" in his "Scotus's Theory of Natural Law," in *The Cambridge Companion to Duns Scotus*, ed. Thomas Williams (Cambridge: Cambridge University Press, 2003), 326.

[56]*ST* I.87.1 (trans. Pegis, 1:836-37).

[57]*ST* I.87.3 (trans. Pegis, 1:840-41)

on its natural appetite. It would will the willing of happiness for the sake of its perfection and for no other end.

Scotus's theory of freedom is therefore properly completed by his appropriation of Anselm's distinction between the affection for the advantageous (*affectio commodi*) and the affection for justice (*affectio iustitae*).[58] What Scotus defines as the affection for the advantageous is nothing other than the will's natural desire for happiness (defined as self-perfection or fulfillment). What he defines as the affection for justice is the ability to will some good not oriented to the self.

According to Scotus's notion of the two affections, the will is not bound to act for the sake of its own perfection precisely because it can act for the sake of another. The will's freedom, like the will's nature, is defined teleologically.[59] Since reason

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[58]*Ord.* III, suppl., d. 46 (*DSM*, 179-81).

[59]Much of current scholarship has been polarized over whether Scotus's ethics can be characterized as a teleological or a libertarian/divine command theory. The latter interpretation has been propounded in a series of articles by Thomas Williams (see, e.g., "How Scotus Separates Morality from Happiness," *American Catholic Philosophical Quarterly* 69 [1995]: 425-45; "Reason, Morality, and Voluntarism in Duns Scotus: A Pseudo-Problem Dissolved," *The Modern Schoolman* 74 [1997]: 73-94; and "The Unmitigated Scotus," *Archiv für Geschichte der Philosophie* 80 [1998]: 162-181), while a more moderate interpretation has been defended against Williams by Allan Wolter ("The Unshredded Scotus: A Response to Thomas Williams," *American Catholic Philosophical Quarterly* 77 (2003): 315-56; see also his "Native Freedom of the Will as a Key to the Ethics of Scotus," in idem, *The Philosophical Theology of John Duns Scotus*, ed. Marilyn McCord Adams [Ithaca, NY: Cornell University Press, 1990], 148-62) and Mary Beth Ingham ("Duns Scotus, Morality, and Happiness," 173-95; and "Letting Scotus Speak for Himself," *Medieval Philosophy and Theology* 10 [2001]: 173-216). It should be clear that I think that pitting Scotus's doctrine of freedom against his use of teleology is wrong-headed, since (as I have shown here) the two are inexorably connected.

demonstrates that what is most lovable is to be loved above all,[60] the affection for justice allows one to love this supremely lovable thing for its own sake. But the way to accomplish this (at least most of the time) is to will something in line with one's natural inclination, but for the sake of another. Thus, even perfect happiness—union with God in heaven—can be willed more for God's sake or more for one's own sake. Using the will's self-reflexivity as his apparatus, Scotus is able to explain how the discrepancy of loving union with God more than God Himself can exist. As he puts it, the devil fell from grace when he failed to 'moderate' his natural desire for happiness with his affection for justice,[61] and thereby ended up willing his union with God for his own sake.[62] Scotus remarks, "And this would be the supreme perversity of the will, which—according to Augustine—is to use as means what is to be enjoyed as an end, and treat as an end what is to be used as a means."[63]

Scotus's discussion of willing happiness shares the same Franciscan emphasis on ecstatic love that Gonsalvo exhibits. Like Gonsalvo, he equates the prioritization of union over love with the highest form of idolatry. And like Gonsalvo, he places emphasis on the will's ability to go beyond itself and love something as it is in itself.

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[60]*Ord.* III, suppl., d. 27 (*DSM*, 435).

[61]Scotus notes that the affection for the advantageous could be moderated by not eliciting an act, or by not eliciting it for one's own sake alone, or by eliciting it only at the appropriate time. It is only because we possess the ability (and hence responsibility) to moderate the affection for the advantageous that following it isn't always considered to be good (*Ord.* II, d. 6, q.2 [*DSM*, 471]).

[62]Ibid. (*DSM*, 463-77).

[63]Ibid. (*DSM*, 473).

Scotus defines this ability in terms of a self-reflexive willing that can follow either of two affections. He retains the constant and necessary natural appetite for happiness at the first-order level of willing in the form of the affection for the advantageous. At the second-order level of willing, the first-order willing itself becomes an object of the will directed to some end. It is at this reflexive level that the affection for justice is present alongside the affection for the advantageous. The capacity of the affection for justice to operate at this second-order level of willing explains the will's freedom, and hence its moral responsibility. On the one hand, the will is free to moderate the desire for happiness by not willing what the natural appetite wills or nills. On the other hand, the will is also free to elicit its acts, including willing happiness, finally for the sake of the Beloved, not the lover.

Indeterminacy and Contingency

Scotus's account of the self-reflexive will raises some metaphysical questions. The ability of the will to control when it does or does not act seems counter-intuitive. How can the will itself activate or deactivate itself? Scotus's conception of the will sounds about as strange within an Aristotelian universe as a toy robot that can control its own 'on/off' switch would within ours. If the operation of the will is potential with respect to both nilling and willing, then it would seem that something external to the will is required to reduce its potency to actuality.

Scotus addresses this problem in relation to a distinction that Aristotle makes in Book IX of the *Metaphysics*. Aristotle claims that the difference between rational and irrational potencies is that "the former are capable of contrary effects but the latter

produce but one effect."[64] Scotus asks whether this distinction is appropriate, and in so doing attempts to reconcile his doctrine of the will to Aristotelian science. He argues that there are two kinds of ways in which an operation proper to a potency can be actualized: "either [1] the potency of itself is determined to act, so that so far as itself is concerned, it cannot fail to act when not impeded from without; or [2] it is not of itself so determined, but can perform either this act or its opposite, or it can either act or not act at all."[65] He continues, "A potency of the first sort is commonly called 'nature', whereas one of the second sort is called 'will'."[66]

For Scotus, then, Aristotle's rational/irrational potency distinction maps perfectly onto the distinction between will and nature. Only the will is a rational potency, because only it is undetermined towards its effects. This generates the apparently paradoxical conclusion that the intellect is not itself a rational potency. According to Scotus, with the distinction taken in the strict sense, i.e., in terms of its elicited act, the intellect falls under the class of natural things. The intellect is determined to a single effect: knowledge. It cannot both understand and not understand, nor can it both assent to and dissent from, the same thing. The intellect's assent to propositions is based entirely on the degree of evidence they possess.[67] The intellect necessarily elicits an act of understanding when

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[64]*Questions on the Metaphysics* IX.15 (trans. Etzkorn and Wolter, 2:603); cf. Aristotle, *Metaphysics* IX.2, 1046b5-6 (trans. Barnes, 1652).

[65]Ibid. (trans. Etzkorn and Wolter, 2:608).

[66]Ibid.

[67]This does not mean that for Scotus the intellect is incapable of errors in judgment, independent of the will's acting on them. However, Scotus does say elsewhere

confronted with indubitable first principles and the necessary conclusions that follow from them.[68] If, as Aristotle says, some knowledge is of contraries, this does not imply that the intellect is somehow undetermined to its effect, for it would still necessarily elicit its act of understanding the contraries.[69]

Scotus admits that the Philosopher himself does not usually employ the term 'rational potency' in the strict sense. Most of the time, Aristotle uses 'rational potency' more generally to refer to something that exerts a certain kind of influence over the acts of other things. In this sense he contrasts 'acting by intellect' and 'acting by nature'.[70] In other words, the intellect is a rational potency in the sense that it directs the will. Taken in itself, however, its 'rationality' is incomplete. As paradoxical as it sounds, the will is

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that the 'blinding' of humanity's cognitive abilities was a consequence, not a cause, of original sin (*Ord.* III, suppl., d. 33 [DSM, 325-27]). As he explains it, the intellect can be habituated by an evil will in two ways: the will can force the intellect to dwell on merely probably sophistical arguments that justifies its actions, rather than on the right dictate; and the will can command the intellect to determine the means to an evil end (*Ord.* III, suppl., d. 36 [DSM, 401-03]). A malhabituated intellect would then fail to make trustworthy judgments about other things as well.

[68]Scotus makes this point more explicitly in *Reportatio* IA, d. 1, part 1: "the assent of the intellect is not in its power but is necessarily controlled by the evidence of the object. It must assent or adhere through an act of understanding to what is evident to a greater degree than it does to what is not evident" (trans. in *The Examined Report of the Paris Lecture: Reportatio IA*, ed. Allan B. Wolter and Oleg V. Bychkov [St. Bonaventure, NY: Franciscan Institute, 2004], 93).

[69]*Questions on the Metaphysics* IX.15 (trans. Etzkorn and Wolter, 2:611-12).

[70]Ibid. (trans. Etzkorn and Wolter, 2:612-13). 'Acting by nature' and 'acting by intellect' are phrases are taken from a similar discussion in *Opus Oxeniense* II, d. 25 (trans. in Arthur Hyman and James J. Walsh, eds., *Philosophy in the Middle Ages: The Christian, Islamic, and Jewish Traditions*, 2d ed. [Indianapolis: Hackett, 1983], 642).

more rational than the intellect, because only the will acts with reason.[71] Scotus comes down clearly on the side of the will as the superior power when the two are compared.

Scotus's circumscription of the intellect raises some doubts. First of all, if the intellect directs the will, is it not just as determined as the intellect? That is, once the intellect has recommended a course of action to the will, must not the will too elicit its act? On the contrary, replies Scotus, the will's indeterminacy entails precisely that it is not forced by anything external to it to act, including the dictates of reason. Thus, when confronted with two goods, one less evidently good than the other, it can will either one.[72]

This leads to a second doubt, concerning the problem mentioned above: if the will is undetermined to its effects, how is it moved? Scotus faults this objection for construing the indeterminacy of the will as an imperfection, i.e., something that is lacking compared to actuality. This indeed is the sort of "insufficiency" found in natural agents that must be overcome by the intervention of something else in order to determine it to act. There is, however, another indeterminacy that Scotus calls "a superabundant sufficiency"[73] which is not lacking in anything, and therefore does not need anything else to reduce it to act. It is *more than* determined to its effects. But once one has attributed this sort of indeterminacy to the will, one should realize that any further inquiry into what

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[71]*Questions on the Metaphysics* IX.15 (trans. Etzkorn and Wolter, 2:616-17).

[72]Ibid. (trans. Etzkorn and Wolter, 2:623); again, see *Rep.* IA, d. 1, part 1: "[The will] can assent to a greater good that is less well known than to one that is more evident, although it is bound to tend to a greater extent to a greater good" (trans. Wolter and Bychkov, 93).

[73]*Questions on the Metaphysics* IX.15 (trans. Etzkorn and Wolter, 2:610).

causes the will to act is wrongheaded. The only reason that the wills elicits this or that act is simply that "the will is the will."[74]

The direct consequence of the will's 'superabundant sufficiency' is that everything it causes is radically contingent. Because the will is not determined to its effects, every act of willing could have been otherwise. In order for the will to be genuinely free, it must in a sense retain the power of opposites even in the act of willing one or the other—as Scotus explains, "Not in the sense that it could will the opposite at the same time as it wills this, but in the sense that it has the power to will the contrary at that very instant, but not willing the other at that instant."[75] He rejects the definition of a contingent effect as something which could have been otherwise prior to its causation, because, prior to its causation, the effect is neither contingent nor necessary—it does not exist. His counter-argument runs as follows: an act is potentially contingent if its cause has the power to do the opposite. Therefore, an act is only actually contingent if its cause still has the power to do the opposite. If this were not the case, then Aristotle's distinction between rational and irrational potencies would not hold.[76] Without it, everything that exists would exist necessarily, and the will would not be free.

The preceding analysis has wended its way across four quadrants of Scotus's doctrine of the will: self-reflexivity, the dual affections, superabundant sufficiency, and

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[74]Ibid.

[75]Ibid. (trans. Etzkorn and Wolter, 2:622).

[76]Ibid. (trans. Etzkorn and Wolter, 2:619-20).

what scholars have come to refer to as 'synchronic contingency.'[77] The path that was traced began in the field of ethics and arrived at metaphysics. One ought to remember, however, that they exist on a single plane. Scotus considers each component to be essential to freedom, and freedom to be essential for love. On the one hand, the will is undetermined to its effects because it can will for the sake of its own happiness or out of love of another. On the other hand, the will's love is truly estimable and generous because it is not necessitated by anything. This thematic interweaving provides the most relevant backdrop to Ockham's account of the relation of intellect and will. As will become evident, part of the uniqueness of Ockham's account is how he pulls apart the Scotist fabric in order to retain some strands and discard others.

Ockham: The Will, Transcendentalized

Ockham's conception of the will's freedom is consistent throughout his work. He appeals to it in his natural philosophical treatises[78] and his *Sentences* commentary.[79] Probably the clearest and boldest formulation he offers is in his *Quodlibetal Questions*, where he defines freedom as "the power by which I can indifferently and contingently posit diverse things, in such a way that I am both able to cause and able not to cause the

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[77]For more information on the latter, see *Contingency and Freedom: John Duns Scotus, Lectura I 39*, ed. Antonie Vos Jaczn et al. (Norwell, MA: Kluwer, 1994); and Stephen Dumont, "The Origin of Scotus's Theory of Synchronic Contingency," *Modern Schoolman* 72 (1995): 149-67.

[78]See, e.g., *Brev. Phys.* VIII.1 (trans. 119).

[79]See, e.g., *Sent.* I.1.6 (trans. 413).

same effect when there is no difference anywhere else outside that power."[80] Notice that Ockham says, "anything else outside that power," rather than (in keeping with the earlier part of the definition), "anything else outside myself." This specification is of course necessary to allow for willing to not be constrained by intellection, either—at least not in the sense that a change in volition must be preceded by a change in intellection.[81] As he states later in the same question, "It can be the case that an object is known and present to the will, and that all the other prerequisites for an act of willing persist over an interval of time, and yet that the will afterwards elicits its act without any extrinsic action. And this is all because of the will's freedom."[82]

Ockham thinks that the freedom of the will is not demonstrable by reason, because "every argument meant to prove it will assume something that is just as unknown as, or more unknown than, the conclusion."[83] That is to say, one cannot formulate a syllogism of the form 'all wills are *x*; *x* is free; therefore all wills are free,' because whatever *x* might be, it would be just as mysterious in its freedom as the will itself. It is therefore not possible to scientifically classify the will any further than to simply say that the will is what it is. Ockham does think, however, that the freedom of the will is evident from experience, specifically, our experience that we can always act against reason's

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[80]*Quodl.* I.16 (trans. 75).

[81]As many have pointed out, Ockham does believe that the will *is* constrained by the intellect just in the sense that the will can only will that which is known by the intellect (which is only to rule out that wills in Ockham's day could have loved and done things for the sake of computers, and other such absurdities).

[82]*Quodl.* I.16 (trans. 76).

[83]Ibid. (trans. 75-76).

dictates. There is ultimately nothing stopping us from doing something contrary to reason (like driving into oncoming traffic) beyond our not willing to do so.[84]

Natural Inclination, Habit, and Necessity

Already in this brief formulation certain important similarities and differences between Ockham's and Scotus's understandings of freedom are brought out. Both Ockham and Scotus work within the Franciscan tradition generally in treating the will as an active and self-determining power. Ockham follows Scotus more particularly in associating the will's freedom with the contingent causality of its effects. Yet he diverges from him in how the conception of contingency is brought into focus. As noted earlier, Scotus elaborates his conception of contingency in terms of the will's retained ability to not will the thing it is willing in the exact moment when that thing is being willed (i.e., his notion of synchronic contingency). Ockham, by contrast, looks outside the will, pointing to the way in which the will's activity is unconstrained by external conditions. In short (and to risk over-simplification), Scotus approaches contingency internally, Ockham, externally. This is highlighted by their respective adoption of terms: the will's 'superabundant sufficiency' versus its 'freedom of indifference'.

This is not to suggest that Ockham's definition of freedom is just the mirror image of Scotus's mapped onto a different territory, however. By shifting focus from internal to external conditions, Ockham executes what can be considered a radicalization of Scotus's metaphysics of 'superabundant sufficiency'. It is a radicalization in part because it does away with the intricate two-affections theory that complements it. By defining the will's

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[84]Ibid.

freedom in terms of its absolute indifference towards its possible effects, Ockham is opposed to any discussion of inclinations or anything else which implies that the will is inherently directed towards acting in a certain way. Scotus's explanation of freedom in terms of two levels of teleology within the will (to will or nill, and to will or not will, following the two affections) clearly does not pass muster in this regard.

For Ockham, then, the will cannot have any *natural* inclinations because the will is not natural at all—it is free. Hence, at the suggestion that the will is naturally inclined towards seeking happiness in the same way that any creature is directed towards its end, Ockham retorts, "the will is not like that."[85] The only acceptable use of the phrase 'natural inclination' is to denote "what is done in the common course of things."[86] Ockham therefore almost exclusively uses the term 'inclination' (*inclinatio*) as something that a *habit* does: it inclines the soul to a particular action or thought.[87] A habit, of

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[85]*Sent.* I.1.6 (trans. 417).

[86]Ibid.

[87]Here it is worth noting that Ockham's *Sentences* commentary is virtually devoid of any references to inclination except in the third book, where the main subject is the virtues, which, (a) having to do with merit and judgment, of course, presuppose freedom; and (b) are a kind of habit. Even his physical treatises contain only a few scant references, which if anything deal with natural science as a habit of the soul (*Summula Philosophiae Naturalis* III.21 [*OPh* VI, 313]). On the basis of a few exceptions to this rule (*Sent.* I.1.6 [trans. 413-14]; *Sent.* II.15 [OTh V, 351, 355]; and *Connex.*, a. 2 [trans. 83-85]), Marilyn McCord Adams has argued that Ockham only means to deny that inclinations have any binding (causal or restrictive) force on the will, not to deny that the will has any natural inclinations at all ("The Structure of Ockham's Moral Theory," *Franciscan Studies* 29 (1986): 12-13; and "Ockham on Will, Nature and Morality," 255). Because Ockham at times adopts the terminology of others for the sake of argument, and in light of the critical comments that he makes regarding natural inclinations elsewhere, I am personally disinclined to accord the examples the kind of weight that Adams has. Ockham's (scant) mention of the two affections in *Sent.* I.1.6 is certainly not decisive in

course, is something acquired rather than innate, produced and strengthened in the soul as the result of numerous actions directed toward the same end.[88] Ockham thinks that it is not absolutely necessary to posit habits in the will, because "at the first cognition it can elicit just as perfect an act as it can after it has elicited many acts"[89]—unlike, say, habits of the body, wherein one gets progressively better at one's craft (weaving, cobbling, etc.) the more one practices it. But to the extent that it becomes easier to follow certain desires after repeated acts, Ockham thinks it reasonable to suppose that there are indeed habits that can incline the will in one way or another.[90] Yet even at this point the inclination of the will by a habit is not something inhering in the will (like a 'second nature', one might say); rather, it is an act upon the will by the habit.[91] The difference all this makes to the

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this regard; they can plausibly be interpreted as acts of the will rather than as natural inclinations (see p. 51 n. 91 below). In the other examples, Ockham uses the terminology of inclination for the sake of explaining how sometimes the will can act contrary to it, or how certain actions imposed on the will do not qualify as contrary to it. He is not concerned with elucidating 'how' these inclinations are to be found in the will in the first place. But regardless of whether Ockham thinks of all inclinations as habits, Adams and I agree that he does not build his conception of freedom upon them, and that this is a major point of divergence from Scotus (Adams, "Structure of Ockham's Moral Theory," 13).

[88]See Ockham's remarks concerning the term 'habit' in *Quodl.* II.18 (trans. 158-59).

[89]*Quodl.* III.20 (trans. 236).

[90]Ibid. (trans. 235-36).

[91]Perhaps it would be simpler to say that an inclination is an act of a habituated will. At any rate this is what Ockham makes of the distinction between the *form* and *act* of a habit. For Ockham, the habit inheres in the soul as a kind of quality, but the inclination is a separate act by the habit upon the soul which inclines it in a certain way. The fact that someone does not lose a particular habit while asleep, although he or she is not inclined by the habit at that time, demonstrates that inclination and habit are not identical (*Quodl.* III.22 [trans. 240]). The way that Ockham contrasts the affection for

meaning of inclination should be clear: whatever the influence it may have on the will,[92] it is first and foremost volition that produces inclination, not vice versa.[93]

Because Ockham construes the will's freedom in terms of its relation to external conditions, he is able to allow for some exceptions.[94] Again, this is a point of divergence from Scotus, whose internalist perspective of synchronic contingency rules out the possibility that the will could act necessarily rather than freely, since willing necessarily is more or less a contradiction in terms. Ockham, however, grants that there are certain cases in which the will might not be able to either act or not act without any change in prerequisite conditions.[95] A strongly habituated volition, for instance, might in some circumstances be considered necessary rather than free.[96] Ockham also says that once a

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the advantageous and the affection for the just with *nilling* the disadvantageous and the unjust suggests that he thinks the two affections are themselves kinds of acts as well (see *Sent.* I.1.6 [trans. 413-14]).

[92]Ockham stipulates that the will is only inclined by habits when it "consents to them by means of a volition" (*Quodl.* III.22 [trans. 241]). If the will withholds its consent, it can act contrary to the inclination (Ibid.).

[93]That is to say, the "first act" is an efficient cause of the habit, while later acts can be partially caused by the habit (*Quodl.* III.21 [trans. 238]).

[94]For a more extensive list than provided here, see Adams, "Structure of Ockham's Moral Theory," 11-12.

[95]In these cases the act would cease to be meritorious, since the will is no longer in control (*Quodl.* III.19 [trans. 234]).

[96]"It can be said that, although the will is free with respect to any act elicited by it when the act is considered absolutely, nevertheless, when considering some act of the will insofar as another act precedes that act in the will, the will is not free with respect to that act. . . . In the same way it can be said that, when something desirable has been apprehended, and the inclination of a habit remains in the will—an actual inclination, I say, just as a human experiences it more one time than another—then I say that it is not in the power of the will to elicit an act with respect to the desirable thing except via the

particular end has been accepted by the will, along with a particular injunction from the intellect about the necessary means to that end, the efficacious willing of the end by the means will be necessary.[97] Ockham's understanding of volitional necessity, then, can be considered an act of 'precision' in the scholastic sense—which is to say, one is able to consider necessity by 'bracketing out' the larger context of contingency in which it is situated.[98] For example, strictly speaking, no act of the will is necessarily virtuous, since no act of will necessarily exists; however, given that the act has been elicited, and given the concurrence of another appropriate act (such as a divine precept commanding the act to be elicited) it can be considered necessarily virtuous.[99]

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habitual inclination" ("Potest dici quod licet voluntas sit libera respectu cuiuscumque actus ab ea eliciti absolute considerando, tamen considerando aliquem actum voluntatis in quantum alius actus antecedit in voluntate, non est voluntas libera respectu illius actus. . . . Eodem modo potest dici apprehenso aliquo concupiscibili, et stante inclinatione habitus in voluntate—inclinatione dico actuali, sicut homo experitur plus uno tempore quam alio—tunc dico quod non est in potestate voluntatis quin eliciat cum habitu inclinatione aliquem actum circa illud" [*Sent.* III.7 (*OTh* VI, 210-12)]).

[97]Ockham writes, "What is assumed is clear: Let it be posited that someone efficaciously wills health but does not know whether or not a bitter potion is necessarily required for obtaining it. Given this, he will be able freely to will or not will to have the bitter potion. If, however, he begins to believe that he will in no way be able to be healthy without the bitter potion, if that belief and the prior efficacious willing of health stand, a willing of the bitter potion will follow necessarily—just as necessarily as heat follows in wood at the presence of fire" (*Sent.* I.1.6 [trans. 408]).

[98]From the standpoint of faith, science itself is seen to perform this act of precision (whether the scientist knows it or not), since revelation shows that all creation is the contingent product of the divine will (see chap. 2 below, pp. 96-97, and the section "Science and Theology" in the conclusion, pp. 132-35).

[99]*Quodl.* III.14 (trans. 211); but cf. *Connex.*, a. 1 (trans. 69-71). As the translators of the *Quodlibetal Questions* point out, this comports with the principle of Ockham's logic stipulating that a modal proposition is only true or false, and hence necessary or contingent, when it actually exists (note, p. 211; see *SL* II.9 [trans. 111]). On my reading, this situates the logic of necessary and contingent propositions within an ontological

The will's choice of ends

As we have seen, Ockham's understanding of freedom is opposed to any conception of the will as naturally inclined towards its own perfection. The direct consequence of this antithetical stance is that the will is not fixed in its direction towards an external end. The line of reasoning here is fairly straightforward: to the extent that the end of volition is understood to be something real and external to the volition itself, it counts among the 'prerequisite conditions' that the will is indifferent towards. This applies to the highest end as well as intermediate ends; as Ockham puts it, "the will acts freely and contingently with respect to any object [i.e., end] whatever." Thus, for example, the will is free to nill or to cease willing its supreme perfection—union with God—even when it possesses it supremely.[100]

If the will is not constrained by the end it happens to choose, in what sense can that end be considered a *cause* of volition? In other words, how does Ockham define final causality so that it does not violate the will's neutrality towards all possible objects? Again, the clearest and boldest formulation is to be found in his *Quodlibetal Questions*. Ockham argues in question IV.1 that the primary sense of the term 'end' is 'that which is desired by an agent.' Accordingly, he sees the final cause correlated with the efficient cause in the same manner that the matter is correlated with the form: just as the causality of the matter is to be in-formed by the form, and the causality of the form is the in-

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horizon of contingency, since the propositions in question need not exist.

[100]For ceasing to will the state of blessedness, see *Sent.* I.1.2 (trans. 370); for nilling (or 'willing against', in this translation), see *Sent.* I.1.6 (trans. 416) and *Sent.* IV.16 (*OTh* VII, 350-54). For a more extensive list of what Ockham thinks the will can do vis-à-vis its objects, see Adams, "Structure of Ockham's Moral Theory," 13-14.

forming of the matter, so too efficient causality consists in an agent's loving an end efficaciously, and final causality consists in being loved by the agent. The four causes are set up as two analogous pairs of action and passion.[101] Notably, Ockham avoids the language of the end 'moving' the agent to act. Elsewhere, he explains that 'moving' is by definition efficient causality. Were the end to 'move' the agent, the end would itself be another agent. Hence, the 'movement' of the agent by the end is only metaphorical, and consists in nothing other than its being loved by the agent.[102]

Like the freedom of the will itself, Ockham thinks the principle that a will acts for the sake of an end is not demonstrable from reason, although it is evident from experience.[103] Although he does not spell out the connection, it would seem that the former follows from the latter. Precisely because the activity of the will cannot be definitively explained by enumerating the list of 'prerequisite conditions' of willing

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[101]*Quodl.* IV.1 (trans. 245).

[102]In the disputed question *De Fine*, Ockham writes, "But there is more doubt about the causality of the final cause [than of the other causes]. For it is commonly said that its causality is to move the efficient towards acting. But this 'to move' is really nothing other than for the end itself to be loved by the agent or at least for itself to be loved and for some other thing to move on its account. And this is really nothing other than for the agent to love the end itself or become something or will something on account of the loved end. . . . From which it follows that this motion of the end is not real, but metaphorical motion" ("Sed de causatione causae finis est magis dubium. Dicitur enim communiter quod causatio eius est movere efficiens ad agendum. Istud movere non est realiter aliud nisi ipsum finem amari ab agente vel saltem ipsum amari et aliquid [aliud] propter ipsum. Et hoc non est aliud realiter nisi agens amare ipsum finem vel aliquid fieri vel aliquid velle propter finem amatum. Ex quo sequitur quod motio ista finis non est realis, sed motio metaphorica" [*OTh* VIII, 107-08]); for more on this particular work, see Stephen F. Brown, "Ockham on Final Causality," in *Studies in Medieval Philosophy*, ed. John F. Wippel (Washington, DC: Catholic University of America Press, 1987), 268-71.

[103]*Quodl* IV.1 (trans. 249).

(especially in those test-cases where the will acts contrary to reason), one needs to postulate an end which the will begins or ceases to desire while those same conditions continue to obtain in order to render the volition intelligible.[104] That the final cause is uniquely able to cause without existing is therefore a crucial point for Ockham,[105] because the inconsequence of the existence or non-existence of the object of desire 'frees up' the will to act for its sake regardless of what is going on outside of the will.

In short, for Ockham the final cause is something that is chosen by the will. This means any object presented to it by the intellect can be loved as an end. This conceptualization of final causality is compatible with the will's neutrality, since it does not prescribe a set object of love for the will. There is no stipulation that an object must comport with some sort of inclination in order for it to qualify as an end. As Marilyn McCord Adams writes, "Where others (including Anselm, Aquinas, and even Scotus) allow the will's object tendencies to define the proper object of willing as good and of nilling as bad or evil, Ockham lets the will's self-determining power plus the agent's intellectual capacities define the will's scope."[106] The will is thus freely able to will, nill, or not will anything at all, regardless of whether the thing is genuinely worth loving or

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[104]This line of argument is at least hinted at by Ockham's claim that only inanimate creatures are unable to cease moving prior to the acquisition of the end (e.g., *Brev. Phys.* VIII.2 [trans. 124]).

[105]*Quodl.* IV.1 (trans. 245-46).

[106]Adams, "Ockham on Will, Nature, and Morality," 225. My comparison of Scotus and Ockham on the will has greatly benefited from this essay.

not, and regardless of what impact its presence (or lack thereof) has on the will.[107] Because the will is not fixed towards some highest end by a natural inclination, there is no extrapolation from an end being desired to its 'desirability'—which is to say, just because something is loved as the highest end, does not mean that it deserves to be loved as such.[108] Only a will contingently following the dictates of right reason will love the highest thing (God) with enjoyment-love and everything else with use-love.[109]

Ockham: The Intellect, Naturalized

The above analysis can be provocatively summarized as Ockham's attempt to 'transcendendalize' the will, just in the sense that he makes the will's freedom a precondition for seeking ends, rather than the converse. In what follows, Ockham's understanding of the intellect will be shown to turn in the opposite direction, by 'naturalizing' cognition as much as possible. This might seem counterintuitive at first glance, given certain tenets of Ockham's nominalism, especially the principle that

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[107]Hence, for Ockham the power of the will alone cannot secure the state of blessedness for being loved for all eternity; only divine intervention can 'lock' the will into place (*Sent.* I.1.2 [trans. 369-72]).

[108]This is the only proscription I make for the debate over whether Ockham's is a divine command or an Aristotelian/'naturalist' moral theory. For Ockham, only right reason, not ends as such, can tell us whether something is actually estimable—but the above analysis ought to prove neutral with respect to the question of whether right reason answers to natural goodness, divine precept, or some combination of the two. For a recent restatement of the divine command interpretation, see Thomas M. Osborne, "Ockham as a Divine-Command Theorist," *Religious Studies* 41 (2005): 1-22; for a more 'naturalist' interpretation, see the Adams articles cited in this section, as well as Peter King, "Ockham's Ethical Theory," in *The Cambridge Companion to Ockham*, ed. Spade, 227-44.

[109]*Sent.* I.1.4 (trans. 402).

universals are intentions of the soul rather than things in the world. Should not Ockham rather be blamed for *denaturing* the activity of the intellect by severing the intimate connection between words and things that (a non-nominalist interpretation of) the universal captures?[110] Can one not discern glimpses of a proto-Kantian attempt to determine the kinds of concepts that the mind *imposes* on the world when, for instance, Ockham describes science as being primarily about signs rather than about the world?[111] Such accusations might suggest that the process by which the intellect comes to label the singulars of the world with universals could not possibly be a 'natural' one from Ockham's point of view. The burden of this section is to demonstrate, to the contrary, how Ockham's nominalist semantics rests quite comfortably upon his naturalist account of cognition. The charge of Kantianism *avant la lettre* is therefore misplaced.[112] Briefly put, Ockham 'naturalizes' the connection between words and things by arguing that the former are *caused by* the latter. As a result, he is able to depart from an account of universals as some kind of formal identity between them.[113]

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[110]See, e.g., Michel de Certeau, *The Mystic Fable*, vol. 1, *The Sixteenth and Seventeenth Centuries*, trans. Michael B. Smith, Religion and Postmodernism (Chicago: University of Chicago Press, 1992), 29-30.

[111]E.g., *Brev. Phys.* prol., 2 (trans. 2).

[112]Joshua Rayman has contrasted Ockham's account of cognition with Kantianism in "Ockham on Natural Signification," *Franciscan Studies* 63 (2005): 322-23.

[113]It will be clear that I am following here the more radical interpretation of (the later) Ockham as entirely abandoning the attempt to explain cognition based on formal identity (see, e.g., Gavin T. Colvert, "Cognition without Mirrors: Ockham's Theory of Signification," *Modern Schoolman* 3 [2000]: 235-65; and Peter King, "Rethinking Representation in the Middle Ages: A Vade-Mecum to Medieval Theories of Mental Representation," in *Representation and Objects of Thought in Medieval Philosophy*, ed.

Here again, Ockham can be regarded as the heir to certain themes found in Duns Scotus. As explored earlier, Scotus insists that the will is just as self-reflexive as the intellect: the will wills itself just as the intellect thinks itself. But the self-reflexivity of the will has the added consequence of establishing the inherent freedom and contingency in all its acts. Scotus sharply contrasts this with the natural and necessary activity of the intellect. While the will is able to prevent itself from willing or nilling by not acting at all, the intellect is wholly determined towards a single effect (i.e., knowledge), and its assent to propositions is entirely a product of their persuasiveness. For this reason he admits that the intellect is at best an incomplete rational potency when considered apart from the will.

Ockham agrees with Scotus that understanding is a natural and necessary process, at least most of the time, and also contrasts it with volition.[114] This leads him to develop an account of the acquisition of knowledge as determined by a chain of efficient causes that runs from real-world singulars to our thoughts about them. This process comes to fruition in judgment, the determination that a particular proposition is or is not the case. According to Ockham, in order to judge that '*x* is *y*' is true, or more simply, that '*x* exists' is true, one needs first to apprehend the proposition itself. And in order to apprehend the proposition, one must first apprehend its terms (*x*, *y*). In Ockham's language, the cognition of a complex must be preceded by a cognition of the relevant non-

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Henrik Lagerlund [Burlington, VT: Ashgate, 2007], 81-100), as opposed to the more moderate interpretation of Ockham as supplementing his causal account with formal identity (e.g., Adams, *William Ockham*, esp. 137-38; and Robert Pasnau, *Theories of Cognition in the Later Middle Ages* [Cambridge: Cambridge University Press, 1997], esp. 103-05).

[114]*Brev. Phys.* VIII.1 (trans. 119).

complexes.[115] How exactly the soul comes to possess its concepts, and how these concepts apply to the singulars that have generated them, thus turns out to be a question about the foundation of all knowledge.

Background: The Species Account of Cognition

In order to understand Ockham's unique response to this philosophical question, it is necessary to contrast it with the alternative: the so-called intelligible species account of cognition endorsed by Thomas Aquinas and his successors. Aquinas builds his theory on three inter-related Aristotelian principles. In the first place there is the psychological principle that 'the thing known is in the knower in the mode of the knower.' For Aquinas this implies that the known is "present" in the knower "by its similitude."[116] The senses know things in a bodily and material way, while the intellect knows things in an incorporeal and immaterial way. Second, he also endorses a metaphysical thesis, amounting to an Aristotelian version of realism, that every member of a species shares a 'common nature' that is individuated by certain material conditions.[117] This entails that "a thing's similitude as received in sensation represents the thing as an *individual*; as received, however, by the intellect it represents the thing in terms of an individual *nature*."[118] Third, Aquinas is also committed to the epistemological principle that

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[115]*Sent.* prol., 1 (trans. 18-19).

[116]Thomas Aquinas, *Commentary on Aristotle's* De Anima, 377 (trans. Kenelm Foster and Silvester Humphries [Reprint, Notre Dame, IN: Dumb Ox Books, 1994], 121).

[117]Ibid.

[118]Ibid.; emphasis added.

knowledge begins in the senses.[119]

On the basis of these commitments, Aquinas is left with two tasks, one constructive and one defensive. On the one hand, his account requires some explanation of how the intellect abstracts the universal from the impression of the individual left on the senses. This is where the 'intelligible species' comes in. According to Aquinas, the similitude received by the senses—called the "sensible species"—is collated into a single phantasm received by the imagination (the interior sense-organ) and remaining in the memory. The intellect then comes to know the common nature as a universal by abstracting it from the individuating material conditions of the phantasm.[120] The act of abstracting is performed by the agent intellect, while the product of this act—the intelligible species—is received in the possible intellect. Thus, what the imagination receives as individual and material, the intellect receives as universal and immaterial.[121] It is on the basis of the intelligible species that the intellect is able to formulate concepts and propositions and to make judgments about them. As Aquinas says, the intelligible species is "that by which" the intellect understands something in the world, "of which the species is the similitude."[122] Hence, for Aquinas the veridicality of knowledge is

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[119] *ST* I.84.4 (trans. Pegis, 1:800-03)

[120] *ST* I.84.7 (trans. Pegis, 1:808-10)

[121] "Through the power of the agent intellect, there results in the possible intellect a certain similitude produced by the turning of the agent intellect toward the phantasms. This similitude represents what is in the phantasms, but includes only the nature of the species. It is thus that the intellect is said to be abstracted from the phantasm"(*ST* I.85.1 ad 3 [trans. Pegis, 1:815; I have replaced 'likeness' with 'similitude' for consistency]).

[122] *ST* I.85.2 (trans. Pegis, 1:817, again replacing 'likeness' with 'similitude').

ultimately guaranteed by the formal identity that obtains between thoughts and things as the result of the intelligible species.[123]

On the other hand, the defensive task facing Aquinas is to provide an apology for why the intellect's inability to know singulars qua singulars is not problematic. This task became a priority for Aquinas's successors, after his position was attacked on precisely these grounds in William de la Mare's *Correctorium fratris Thomae*.[124] Aquinas's own response was to say that the intellect does know singulars *indirectly*, "by a kind of reflection" on the phantasm.[125] Hence, the conjunction of sensitive and intellective knowledge yields full knowledge of a thing in the world. That this amounts to something more than an evasion of the problem is of course due to Aquinas's doctrine of

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[123] This summary obviously does not get into the finer points of Aquinas's theory. I have relied mainly on Eleonore Stump, "The Mechanisms of Cognition"; but see also King, "Rethinking Representation in the Middle Ages"; idem, "Thinking about Things: Singular Thought in the Middle Ages," in *Intentionality, Cognition, and Representation in Medieval Philosophy*, ed. Gyula Klima (New York: Fordham University Press, forthcoming), 20 pages (available from http://individual.utoronto.ca/pking/articles/Thinking_about_Things.pdf, accessed 13 October 2006); and Pasnau, *Theories of Cognition*, esp. 11-18.

[124]The problem of singular thought was another source of division between the mendicant orders in the later Middle Ages. Aquinas's species account of cognition was re-articulated and modified by subsequent Dominicans, such that versions of it were present in Ockham's day. Following William de la Mare's critique, Franciscans as well as secular masters tended to adopt alternative models of cognition (King, "Thinking about Things," 5-7; for a discussion of how later Dominicans changed Aquinas's theory to resolve certain tensions, see Stump, "Mechanisms of Cognition," 175-91)

[125]*ST* I.86.1 (trans. Pegis, 1:830); as King notes, Aquinas's position here is admittedly vague, failing to distinguish between "a thought *occasioned* by the phantasm" (which is universal) and "a thought *directed* to the phantasm" (which is supposed not) ("Thinking about Things," 7).

hylomorphism: that the soul is the form of the body.[126] Following Aristotle, he also describes the soul as the final cause of the body,[127] which means in this instance that bodily sensation is ordered for the sake of the intellect. Thus it is through the body and soul working together, with the activity of the former directed towards the activity of the latter, that the human person as a unity is able to know singulars.

Ockham's Response

In developing a theory of how the mind comes to acquire concepts, Ockham rejects the species account found in Aquinas and his successors. As he puts it, the only thing cognition requires is for the object of cognition to be in relative proximity to the thinker.[128] There is a direct, unmediated linkage between the two—which is to say, there is no kind of intermediary 'by which' the known is known. Hence, Ockham not only rejects intelligible species as a similitude of the known existing in the mind prior to cognition,[129] he also came to reject his own, earlier theory of universals as '*ficta*' or mental pictures of things which are the products of thought.[130] In his mature thought found in the *Quodlibetal Questions*, the *Summa Logicae*, and the *Ordinatio* of his

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[126]*ST* I.76.1 (trans. Pegis, 1:695-700).

[127]*Commentary on Aristotle's* De Anima, 321-22 (trans. Foster and Humphries, 102).

[128]*Sent.* II.12-13 (trans. 673).

[129]Ockham defines a species as "that which goes before the act of knowing and can persist before and after knowing, even with the thing absent" (*Sent.* II.12-13 [trans. 670]).

[130]See especially *Quodl.* IV.35 (trans. 389-90). Ockham also rejects what he knows of Peter Auriol's 'apparent-being' theory on the same grounds in *Sent.* I.27.3 (trans. 226-41).

Sentences commentary (i.e., book I), he argues instead that a universal is just the act of knowing itself.[131] In other words, there is nothing 'by which' the known is known save for the activity of the knower herself.

One of the main reasons Ockham gives for rejecting any intermediary between the knower and the known is that it would in fact obstruct the very process of coming to know that it is supposed to establish.[132] This is because the consequence of such a postulate would be that our knowledge would not be about things in the world at all, but would instead be about the intermediary. As Ockham writes in regard to his earlier *fictum*-theory, "if it is a fictive entity that is understood, then it is not the thing outside the soul that is understood."[133]

Of course, such an argument is only compelling on the basis of an alternative account of cognition that does not appeal to species. In order for an intermediary to be obstructive to cognition, it must first of all be superfluous. On Ockham's own terms—that is, in virtue of the principle that 'plurality ought not to be posited without necessity'—his theory must do the same work as the species-account in order for it to be accepted. In order to establish an unmediated connection between knower and known, therefore, Ockham distinguishes between two types of intellective apprehension of non-

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[131]Colvert offers a plausible reconstruction of the development of Ockham's thought on this score in "Cognition without Mirrors," 235-65.

[132]*Sent.* II.12-13 (trans. 675).

[133]*Quodl.* IV.35 (trans. 389).

complexes, which he calls (following Duns Scotus[134]) intuitive and abstractive cognition.[135] An intuitive cognition of a thing is only possible when that thing is present to the soul, such that the intuition is able to cause a judgment about a thing's contingent existence. An abstractive judgment, on the other hand, abstracts from considerations of a thing's existence, and hence cannot cause that sort of judgment. However, the merit of an abstractive judgment is that it can be made when the thing is absent.[136]

Ockham thinks, then, that the proximity of the thing to the knower is sufficient for the latter to have an intuitive cognition of the former. He draws an analogy from theology:

> I say instead that the thing itself is immediately seen or apprehended, without any intermediary between it and the act. Furthermore, there is no more an intermediary between the thing and the act by which the thing is said to be seen than there is an intermediary between God and a creature by which God is said to be the Creator. Rather, by the very fact that God exists and the creature exists—since a creature could not exist if God did not exist—God is said to be the Creator, and so he is really the Creator without any intermediary. In just the same way, by the very fact that a thing exists and a cognition of this sort exists, the

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[134]See, e.g., Duns Scotus, *Questions on the Metaphysics* VII.15.18 (trans. Etzkorn and Wolter, 2:258); also see Allan B. Wolter, "Duns Scotus on Intuition, Memory, and Our Knowledge of Individuals," in *The Philosophical Theology of John Duns Scotus*, 98-122; Stephen D. Dumont, "Theology as a Science and Duns Scotus's Distinction between Intuitive and Abstractive Cognition," *Speculum* 64 (1989): 579-99; and Richard A. Lee, Jr., *Science, the Singular, and the Question of Theology*, The New Middle Ages (New York: Palgrave Press, 2002), 59-71.

[135]I cannot get into some of the finer points of Ockham's understanding of intuitive and abstractive cognition here; for more information, consult the works listed in the introduction above, p. 18 n. 47.

[136]*Sent.* prol., 1 (trans. 20-25). Ockham does not think that his razor can reduce this distinction between two types of apprehension of noncomplexes, precisely because the types of judgments each can cause are not identical (*Quodl.* V.5 [trans. 413-17]).

thing is said to be seen or cognized without any intermediary.[137]

Ockham's comparison of the relation of intuitive cognition to the thing in the world to that of God and his creation is revealing. Although he does elaborate, it is clear that the reason no intermediary need be posited between God and creature in order for God to be called Creator is because God himself is the cause of the creature. It is by virtue of directly causing the creature that God is called Creator. The implication seems to be, then, that similarly the thing is known because the thing itself is the cause of the cognition. Ockham has thus abandoned the attempt to explain why a thought is about something based on a 'formal identity' that obtains between them, in favor of a causal account. The role of the species as guarantor of this 'formal identity' therefore becomes useless, because it is not in virtue of 'formal identity' that a thought is about a thing anyway. This is precisely the point Ockham makes in *Quodl.* I.13: "an intuitive cognition is a proper cognition of a singular thing not because of its greater likeness to the one thing than to the other, but because it is naturally caused by the one thing and not the other, and is not able to be caused by the other."[138]

By replacing formal with efficient causality, then, Ockham is able to fill out his account of cognition without appealing to species. One of the arguments given in favor of species is that it explains how we are able to formulate thoughts about things in their absence, since it remains in the intellect after the thing is no longer present to the senses. Ockham, however, sees the acquired ability to have a cognition of an absent thing as

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[137]*Sent.* I.27.3 (trans. 229).

[138]*Quodl.* I.13 (trans. 66).

causally linked to a prior cognition of the thing when it was present. Because the causal chain does not require the species prior to an intuitive cognition, it does not require it afterwards, either. Instead, Ockham posits that an intuitive cognition of a thing produces a habit inhering in the intellect. On the basis of the habit the intellect is able to have an abstractive cognition of the thing when it is not present.[139]

Because of his alternative approach to cognition, Ockham's solution to the problem of whether and how the intellect can know singulars turns out to be relatively simple. Where Aquinas argues that the intellect only knows universals directly, but can know singulars indirectly by means of the senses, Ockham simply claims that the intellect can know singulars without any supplementary aid from the senses. It would, after all, be contrary to the principles of science to suppose that a lower faculty could possess a perfection that a higher faculty could not.[140] Since the intuitive cognition is caused by this singular and not another, it must be about this singular considered as this singular.[141]

The Foundations of Nominalist Semantics

We now return to the question articulated at the beginning of this section, namely, how Ockham's account of cognition provides the psychological foundation for his nominalist semantics. Ockham intimates in his *Quodlibetal Questions* that in abstracting from a singular thing's contingent existence, an abstractive cognition understands singulars with terms that can be applied to many things outside the soul, i.e., with

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[139]*Sent.* II.12-13 (trans. 674).

[140]Ibid. (trans. 677).

[141]*Quodl.* I.13 (trans. 66).

universals.[142] Yet because the causal sequence runs from intuitive to abstractive cognition, and because a concept is *about* the thing which *caused* it, it follows that all universals signify just singulars.[143] On this basis he does away with the metaphysical thesis (seen in Aquinas) that universals are natures common to many things and our thoughts about them. As he points out in the *Summa Logicae*, universals are so called because they can signify many singulars; they are not universals in the sense that they are found in many things.[144] By rejecting any 'formal identity' between thoughts and things obtaining through an intermediary, and replacing it with an account that only appeals to efficient causality, therefore, Ockham makes all language ultimately to refer back to the world of individual things that caused it.[145]

According to Ockham, the various sciences thus treat those universals that are about the relevant things in the world, while logic deals with those universals that are

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[142]Ibid. (trans. 67). This 'understanding with terms' should not be understood to mean that the terms and the abstractive cognitions are two distinct things; rather, the term is just the act of abstractive cognition itself. On this point, and for more on how the two senses of abstractive cognition—i.e., abstracting from existence, and abstracting from singularity—are related, see Claude Pannacio, *Ockham on Concepts*, Ashgate Studies in Medieval Philosophy (Burlington, VT: Ashgate, 2004), 9-11.

[143]Colvert argues that Ockham's eventual endorsement of a theory of universals as a kind of 'confused cognition' solved for him the problem of how abstractive cognition is caused by intuitive cognition. This allowed him to abandon his *fictum*-theory and hence any last traces of representationalism ("Cognition without Mirrors," 257).

[144]*SL* I. 25 (trans. 104).

[145]This is why he refers to mental language as natural signification (see *SL* I.1 [trans. 49-51]).

about the universals.[146] (This is the distinction between first and second intentions.[147]) Which is to say, all knowledge is of propositions (i.e., complexes) formed from these intentions (i.e., noncomplexes). Ockham writes, "This is what the Philosopher means when he says that knowledge is not about singular things, but about universals which stand for the individual things themselves."[148] Ockham's point here that science is about signs rather than things, then, sounds a cautionary note against the mistaken assumption that for every concept there must be a distinct entity that corresponds to it.[149] This assumption is of course supported by the notion of formal identity which Ockham has discredited. But without the false guarantee of formal identity there is no easy deduction of things from intentions, since many intentions can refer to the same singular but in different ways. It is the task of the philosopher to organize the various propositions into a coherent system, being careful to postulate only singulars that these propositions ultimately refer to, and as few of these as possible.

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[146]*Expos. Phys.* prol. (trans. 12).

[147]*SL* I.12 (trans. 73-75).

[148]*Expos. Phys.* prol. (trans. 11).

[149]As Ockham writes in the *Summa Logicae*, "[T]he tendency to multiply entities according to the multiplicity of terms, so that for every term there is a thing . . . is a wrong-headed approach, and more than any other it leads one from the truth. For one should not ask in the case of every term what the relevant thing is. In the case of many terms the question is what the term means" (I.51 [trans. 171).

Putting Intellect and Will Back Together Again

Ockham's approach to the relationship of will and intellect follows the nominalist programme of science he has laid out. His analysis is governed by his so-called 'razor', which he formulates in this particular case as "something is done in vain through many things that can be done using few."[150] Among other things, Ockham deploys his razor against what he considers to be a metaphysical fallacy: that sameness and difference must somehow be founded in a distinction between real entities. In other words, the broadly 'realist' assumption Ockham aims to expose and refute is that if two things are the same, they must both partake in the same entity; or, if they differ, they must possess different entities. Since the world outside of the soul is only populated with individuals, if one particular individual happens to be like or unlike another, it will be the self-same individual, and not this or that universal, that is the reason for both.[151] The question of how many individual things one is dealing with in a given problem in philosophy, therefore, cannot be solved by a simple deduction from the number of respects of difference and sameness at hand. In order to justify positing multiple entities, therefore, one must demonstrate the absolute incompatibility of the activities (or whatever) in question in a single thing.

Ockham does not so much offer a proof for his view that 'the same thing can be

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[150]". . . frustra fit per plura quod potest fieri per pauciora" (*Sent.* II.20 [*OTh* V, 436]).

[151]*SL* I.17 (trans. 84-85). I leave aside here Ockham's discussion of what one might call 'intentional difference and similarity' so as not to over-complicate matters; suffice it to note that Ockham thinks that the only kind of opposition available to individuals apart from their being signified is sheer contrariety (see *SL* I.36 [trans. 117-20]).

both similar to and different from another' as argue that his opponents already themselves accept it, if implicitly. Once this has been demonstrated, Ockham is able to appeal to the razor to trump their more cluttered ontological postulates. The opponent Ockham usually has in mind is Duns Scotus, who frequently appealed to his conception of 'formal distinction' to solve problems of sameness and difference in the same entity.[152] Scotus had famously used the formal distinction to explain the difference between the universal common nature and the principle of individuation in any individual.[153] Ockham's rejection of this use of the formal distinction—which in principle can be extended to any instance in natural philosophy[154]—operates at two levels. On the one hand, he argues

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[152]As Allan Wolter and William Frank write, "Formalities [for Scotus] are *objective aspects* or characteristics of an extramental thing that can be conceived in principle, one without the other, but are inseparable in the individual thing where they occur." (*Duns Scotus, Metaphysician*, 197; emphasis added).

[153]See *Questions on the Metaphysics* VII.13, and parallel treatments in *Lectura* II.3 (trans. in *Six Questions on Individuation from the Oxford Lectures, Book II, Distinction 3*, ed. Allan B. Wolter, unpublished manuscript, 31 pages) and *Ord.* II.3 (trans. in *Philosophy in the Middle Ages,* ed. Hyman and Walsh, 624-32). Secondary literature on Scotus's doctrine of individuation is abundant; see, for starters, Von T. M. Rudavsky, "The Doctrine of Individuation in Duns Scotus," *Franziskanische Studien* 59 (1977): 320-77, 62 (1980): 62-83; Von Woosuk Park, "Common Nature and Haecceitas," *Franziskanische Studien* 71 (1989): 188-92; Timothy B. Noone, "Scotus's Critique of the Thomistic Theory of Individuation and the Dating of the <<Quaestiones in Libros Metaphysicorum>>, VII q.13," in *Via Scoti: Methodologica ad mentem Joannis Duns Scoti*, ed. Leonard Sileo, vol. 1 (Rome: Edizioni Antonianum, 1995), 391-406; and Jorge J. E. Gracia, "Individuality and the Individuating Entity in Scotus's Ordinatio: An Ontological Characterization," in *John Duns Scotus: Metaphysics and Ethics*, ed. Ludger Honnefelder, Rega Wood, and Methchild Dreyer (Leiden: Brill, 1996), 229-49.

[154]Ockham permitted the formal distinction in God to be something known by faith, but he rejected its applications to natural philosophy. See *SL* II.2: "[S]uch a distinction should not be posited in creatures, although it can in some sense be posited in the divinity. This is so because among creatures it is impossible to find any numerically one thing which is really more than one thing and is each of those things, as is the case

that either a distinction is real (not formal) or it does not exist at all, offering a syllogism as proof: "the nature is not formally distinct from itself; this individual difference is formally distinct from this nature; therefore, this individual difference is not this nature."[155] On the other hand, however, Ockham simply points out that the Scotist is forced to admit that the self-same thing can be the source of sameness and difference apart from any appeal to a distinction, since "it is in terms of the same thing that the individual difference is both really the same as and formally distinct from the nature."[156]

Q. Is the Will Nobler than the Intellect? A. No (Yes)

Ockham's approach to the relationship of intellect and will follows the same procedure. He sees the same metaphysical fallacy regarding sameness and difference manifesting itself in the mistaken assumption that two different operations must stem from two different potencies.[157] This assumption is at work in Scotus's solution, which, predictably, posits a formal distinction between will and intellect. For Scotus the need to distinguish will and intellect is rendered all the more imperative by his insistence on their absolute modal distinctness: willing is free and contingent, while understanding is necessary. While Ockham follows Scotus in distinguishing volition and cognition

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with God" (trans. 90).

[155]*SL* I.16 (trans. 82).

[156]*SL* I.17 (trans. 85).

[157]While some attribute this principle to Aristotle, Ockham claims that it is a misinterpretation: "[T]he Philosopher does not say anything more than that acts come before and are better known than objects and therefore he says that one ought to proceed from the acts to a notion of potencies" (". . . Philosophus non dicit nisi quod actus sunt praevii respectu obiectorum et notiores, et ideo dicit quod ab illis est procedendum ad notitiam potentiarum" [Sent. II.20 (*OTh* V, 444)]).

modally, he does not think this provides sufficient grounds to hold that they are really distinct entities. Contingency and necessity can be in the same entity in different respects. Again, Ockham does not prove this point so much as argue that it is already conceded by his opponents. Scotus for instance thinks that the self-same will that is the contingent cause of volition in itself can be the necessary cause of volition in another.[158] Ockham also points out the anti-parsimonious consequences of this mistaken assumption: if it were true that a different act stems from a different power, then there would be a separate power for every act.[159]

But the only time that one need posit that there are two distinct things is in those cases when some absolutely incompatible difference obtains. Otherwise, the very same

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[158]"Therefore it is not proper to posit a distinction of potencies on the basis of a distinction of acts, nor on account of the diverse modalities of principiating the opposite, because to principiate freely and to principiate necessarily with respect to diverse things are not opposed to each other. . . . It is clear in creatures, because will even according to Scotus is a principle freely and contingently producing in itself an act of willing, and it is a necessary principle producing a volition in another will to the degree that it is the object" ("Igitur propter distinctionem actuum non oportet ponere distinctionem potentiarum. Nec propter secundum, quia principiare libere et necessario respectu diversorum non opponuntur. . . . In creaturis etiam patet, quia voluntas, etiam secundum eum, est principium producens in se libere actum volendi et contingenter, et respectu volitionis in alio quatenus est obiectum, est principium necessarium" [*Sent.* II.20 (*OTh* V, 437)]); this same argument is also found in *Sent.* I.1.6 (trans. 407).

[159]". . . I say that it is not proper to posit a distinction of potencies on account of the diversity of acts so that there are as many potencies as there are acts. For otherwise there would be as many intellective potencies as acts of understanding [and as many volitional potencies as acts of volition]" (". . . dico quod propter diversitatem actuum non oportet ponere distinctionem in potentiis, et tot potentias quot actus. Aliter enim essent tot potentiae quot actus intelligendi [et volendi]" [*Sent.* II.20 (*OTh* V, 429)]). This is of course an argument that only an already committed nominalist would accept, since a realist could appeal to the diversity of species of acts rather than just of individual instances of acts.

thing can be the cause of sameness and difference in two respects.[160] Peter King summarizes Ockham's standard for incompatibility in this case nicely: "if it is not possible to elicit distinct simultaneous acts directed at the same object, holding all other relevant circumstances fixed, the faculties from which the acts stem are really distinct; otherwise, ontological parsimony holds sway, and the acts stem from one and the same faculty or power."[161] Since it is entirely possible to will and understand the exact same thing without any change in conditions, Ockham concludes that there is no distinction in reality between will and intellect.

For Ockham, then, the will and the intellect are both identical with the essence of the soul. The same soul is able to understand with one act and to will with another, since willing and understanding are not opposites. Strictly speaking, therefore, the question of which faculty is the noblest is non-sensical. One cannot say that the will is higher than the intellect any more than that the will is higher than the will.[162] Nevertheless, if one takes 'potency' not in terms of the thing in reality it denotes, but in terms of all that is signified by the concept, then the question does admit an answer. This is because the 'nominal definitions' of each connote their different acts: 'intellect' connotes an act of

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[160]See, e.g., Ockham's refutation of the position attributed to Aquinas (*Sent.* II.20 [*OTh* V, 428]).

[161]"The Inner Cathedral: Mental Architecture in High Scholasticism," in *Transformations of the Soul* (Leiden: Brill, forthcoming), p. 18 of 23 (available from http://individual.utoronto.ca/pking/articles/Inner_Cathedral.pdf; accessed 2 April 2007); in reference to *Sent* II.20 (*OTh* V, 444-45).

[162]In the first book of his *Sentences* commentary, Ockham's response to the question, 'which power is noblest, the will or the intellect?' is simply 'yes': "When it is said that intellect is the noblest power, I concede it. Similarly, the will is the noblest power" (*Sent.* I.1.2 [trans. 372]).

understanding together with the elicitative principle of that act, while 'will' connotes the act of willing.[163] While the elicitative principle is the same in both cases (the soul), the acts are not. Ockham concludes that "by taking both as the totality of what has been signified of their term, it can be conceded that will is more noble than intellect since the act of loving that is connoted by 'will' is more noble than the act of understanding that is connoted by 'intellect'."[164]

The Franciscan Tradition Revisited

Despite his distinctly nominalistic approach to the question of whether the will is nobler than the intellect, Ockham's solution is clearly situated within the Franciscan tradition discussed at the beginning of this chapter. Like his Franciscan predecessors, Ockham articulates a 'philosophy of love' that prioritizes the soul's ability to unite itself with another through love rather than by understanding. Because willing is for the most part free and contingent while thinking is natural and necessary, humanity's characteristic and best activity is conceptualized in terms of the former more than the latter. Thus, it is not surprising that on Ockham's account, the sort of perpetual enjoyment of God in the beatific vision is defined by loving rather than by understanding God.[165] Ockham maintains that the will is freely able to love God above all in the beatific vision. But

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[163]Ockham explains what is meant by 'nominal definition' and 'connote' in *SL* I.26 (trans. 105-08) and I.10 (trans. 69-71), respectively.

[164]"Sed accipiendo utrumque quantum ad totum significatum quid nominis eorum, sic potest concedi quod voluntas est nobilior intellectu, quia actus diligendi qui connotatur per voluntatem est nobilior actu intelligendi qui connotatur per intellectum" (*Sent.* II.20 [OTh V, 441]).

[165]*Sent.* I.1.2 (trans. 367-68).

since this also entails that the will is also freely able to *not* love God in the beatific vision as well, he concludes that God must intervene to produce the perpetual act of enjoyment in the will.[166] Furthermore, Ockham holds that the object of enjoyment is God himself rather than the beatific vision. His arguments against Durandus of St. Pourçain, who held the contrary position, are reminiscent of Gonsalvo of Spain's arguments against Meister Eckhart. Ockham says, for instance, that the beatific vision is ordered to God as a means to an end—in other words, one must love God above all and only love union with him for his sake.[167]

Implications for Science

Looking ahead to the next chapter, it can be said that Ockham's account of the soul serves as a kind of microcosm for natural philosophy in general. As we have seen, the will's freedom is a quasi-transcendental precondition for its choice of ends. The intellect, by contrast, is governed by a natural process of efficient causality that makes no appeal to formal identity—or, for that matter, to teleology. Here the frequently rehearsed

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[166]Ibid. (trans. 368-69).

[167]"[W]hat is to be used is not to be enjoyed. But the act of seeing God is to be used. Therefore, it is not to be enjoyed" (*Sent.* I.1.4 [trans. 399-400]). Arthur S. McGrade has pointed out the connection between Ockham's account of enjoyment and his account of cognition explored above: "As I have interpreted Ockham, ordinate enjoyment establishes a real relationship with something outside oneself. . . . His espousal of direct realism against Durandus of St. Pourçain's proposal of the beatific vision as the proper object of enjoyment is a theological harbinger of typical Ockhamist philosophical positions in the analysis of perception, imagination, memory, concept formation, judgment, and reasoning. In discussing all of these processes, Ockham's aim is to establish as direct a relationship as possible between the mind and the ordinary objects and qualities of the real world" ("Ockham on Enjoyment: Towards an Understanding of Fourteenth Century Philosophy and Psychology," *Review of Metaphysics* 34 [1981]: 726).

criticisms of Ockham's account of cognition are quite telling. On the one hand, he is accused of turning the cognitive faculties into a "black box,"[168] simply asserting that cognition will obtain given the appropriate external conditions. On the other hand, he is charged with making sensation merely incidental to cognition; because the intellect can apprehend singulars directly, the senses make no distinct contribution.[169] Both of these criticisms inadvertently identify the fact that Ockham thinks of cognition in the same way he thinks of any natural process. First of all, Ockham thinks that things act in a certain way because of the sorts of things that they are, and not because of any postulated interior mechanisms or inclinations. As he is fond of saying, fire heats for no other reason than because it is fire.[170] Likewise, given an intellect and an object within relative proximity, the intellect will have an intuitive cognition of it, because that is the sort of thing that the intellect is. Secondly, sensation only fulfills the function (and only in this life) of efficiently causing cognition rather than supplementing it, because Ockham does not want to appeal to a teleological process whereby the sensitive soul acts for the sake of the intellective soul.[171]

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[168]Stump, "Mechanisms of Cognition," 194.

[169]See, e.g., Tachau, *Vision and Certitude,* 147; Stump, "Mechanisms of Cognition," 194.

[170]E.g., *Quodl.* IV.1 (trans. 249).

[171]As Adams notes, because Ockham believes that the intellective and sensitive souls are distinct (*Quodl.* II.10 [trans. 132-36]), i.e., he does not (as Aquinas does) subscribe to the doctrine of hylomorphism, the two bear on each other in the same way that any two separate natures would: "my sensory apprehension of Socrates and his whiteness is of no more use to my intellective soul in formulating the proposition 'Socrates is white' and passing judgment on it, than your apprehension of these things is"

Because of the sharp distinction he posits between free and natural agency, Ockham does not believe it is possible to easily extrapolate from the operation of final causality in the one to operation of it in the other. Voluntary agents choose their ends because they are free. Natural agents cannot be said to choose anything—how then can they be said to have final causes? The analogy between the 'exterior' ends of voluntary agents and the 'interior' ends of natural agents espoused by Aristotle cannot be taken as reliable. Ockham's scientific analysis is therefore guided by a different analogy which preserves this distinction: rather than positing the similarity between voluntary and natural activity, he maintains their dissimilarity by comparing it to the dissimilarity of will and intellect.

(Adams, *William Ockham*, 508).

CHAPTER TWO

OCKHAM ON VOLUNTARY AND NATURAL AGENCY

On Motion and Movers

Natural philosophy, on the Aristotelian programme, is the science of movement, broadly conceived. The four causes assume the role of explaining how and why any kind of change happens in the universe. In order to set Ockham's account of natural final causality in its proper context, therefore, it is necessary to examine first his understanding of motion.[1] For Ockham, natural philosophy as the science of movement describes nothing other than individual things insofar as they move and are moved. Following Aristotle's definition in the *Physics*, Ockham states that "motion is the act of a being in potency insofar as it is in potency."[2] According to Ockham, the term 'act' is crucial to this definition, since it implies that motion is just the verb 'to move' considered as a noun.[3] Since actions (and passions) are not distinct from the entities doing (or undergoing),[4] neither does motion refer to any entity distinct from those moving or being moved. When someone refers to motion as a non-being, the person ought to have said that 'motion' stands for a thing to be acquired which does not yet exist. Conversely, if

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[1]For more on Ockham's understanding of motion, see Shapiro, *Time, Motion, and Place*, 24-91; and Goddu, *Physics of William of Ockham*, 159-201.

[2]*Brev. Phys.* III.1 (trans. 41); cf. *Physics* III.1 201a28-29 (trans. Barnes, 343).

[3]See *Quodl.* IV.10 (trans. 286-87).

[4]See Ockham's remarks about the categories of action and passion in *SL* I.57-58 (trans. 180-84).

someone says that motion is a being, this should be taken to mean that a mobile being is already in existence or it has already acquired something it did not have before. The same is true, *mutatis mutandis*, for things being taken away.[5] Motion is said to be an accident, then, not because it really inheres in a subject—after all, motion signifies none other than the subject as a mobile thing[6]—but rather because it does not give the essential definition of the thing.[7]

The Division of Motion

Ockham goes on to divide motion according to its kinds. In the strict sense (i.e., under the division), motion must be distinguished from generation and decay (corruption), depending on whether the change is from subject to subject or from non-subject to subject (and vice versa), respectively. The difference between them is thus twofold. "First, motion is between contraries; generation and decay are between contradictories. The second difference is: that which is generated does not exist and does not occupy place; that which moves exists, and does occupy place."[8] Ockham is quick to point out that this distinction, which comes from Aristotle, is between signs rather than things. As he argues in the *Summa Logicae*, "things outside the soul, things that are not

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[5]*Brev. Phys.* III.1 (trans. 40-41).

[6]Ockham grants that "motion is in the movable thing," just so long as this means "the movable thing moves" (*Brev. Phys.* V.2 [trans. 88]).

[7]In other words, motion is said to be predicated *per accidens* because it is not predicated according to the first mode of *per se* predication (namely, the definition of a thing by genus and species) (*Brev. Phys.* III.2 [trans. 44]) For an explanation of the four modes of predication, see *Brev. Phys.* V.1 (trans. 81-82); for an explanation of essential definition, see *SL* I.26 (trans. 105).

[8]*Brev. Phys.* V.1 (trans. 81).

signs, can only be opposed as contraries."[9] Hence, it is the intentions of the soul successively signifying the being that is generated (or decaying) that are contradictory to each other, not the being itself that is contradictory to non-being.[10] Ockham also clarifies that the contrariety of motion is also something other than the 'sheer' contrariety (or contrariety properly speaking[11]) between individual things in the world. Thus, motion similarly refers to a kind of opposition between signs that are successively predicated of a thing that acquires something.

Following Aristotle, Ockham claims that motion in the strict sense takes place in only three categories: quality, quantity, and place. (Motion in the general sense takes place in the category of substance as well, but this of course falls under the division of generation and decay.) Motion according to quality is called alteration. Properly speaking, alteration occurs when a new reality is acquired in the category of quality by motion (e.g., something becomes white). Ockham allows that the term can be used more broadly as well, in those cases when a quality is acquired by something other than motion, or "when something predicable in the category of quality is verified of something in a new way solely because of local motion, as when something has a new shape or becomes curved, and suchlike."[12] Motion according to quantity is called increase and decrease, as when a thing becomes bigger or smaller due to the addition or subtraction of

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[9]*SL* I.36 (trans. 117).

[10]*Brev. Phys.* V.1 (trans. 83).

[11]Ibid.

[12]*Brev. Phys.* V.2 (trans. 85).

some external thing, or due to expansion or rarefaction.[13] Finally, motion according to place is called local motion, which Ockham defines as "the successive coexistence with different places, without intervening rest, of something that is continuously in a place."[14] These qualifications are necessary to the definition because (a) if the coexistence were not successive, the thing would not be moving at all; (b) if a rest obtained part way through, it would not be a *single* movement; and (c) if the thing were not always in some place or another, then it would not be moving *locally*.[15]

Local motion is distinct from the other types of motion (including generation and decay) in that nothing new is acquired or lost by the mobile object as a result. Rather, "by the very fact something moves locally and becomes present in a different place . . . , that thing is said to be somewhere where it previously was not."[16] The similarity between local motion and Ockham's account of cognition (explored in the previous chapter) should not be missed here. In both cases, Ockham believes that an explanation based on efficient causality renders any appeal to formal causality superfluous. To say that local motion does not produce anything new means precisely that there is no need to posit the influx of a form.

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[13]Ibid.

[14]*Quodl.* I.5 (trans. 28).

[15]Ockham gives an example regarding the last as "if God first created a body in a place, and then destroyed that body, and then created the same body again in another place, that body would coexist with different places without any motion" (Ibid.).

[16]*Quodl.* VII.6 (trans. 610).

The Division of Things Moved: Art and Nature

Ockham's understanding of the art-nature distinction is situated within this ontologically sparse theory of motion. As such, it acquires a different casting than the one originally given it by Aristotle. According to Aristotle, the classification of something as natural or artificial depends on whether it contains the principle of its own movement. An artificial object, such as a statue or health in a patient, must be acted upon by an external agent—an artisan of some sort—in order to become what it is. A natural object, on the other hand, becomes what it is without the aid of an external source. This is why, for instance, a flower will grow while a statue will not. The statue, of course, could change by, say, having an arm break off with age, but this again would require an external source (erosion, vandalism, or whatnot). Nevertheless, Aristotle thinks that art and nature are analogous because the movement in both cases is intelligible—it happens for a reason, that is. Intelligibility implies that the activity must be teleological, i.e., directed towards the acquisition of a form. But while the end of the production of an artificial object must be cognized by the artisan, no deliberation is required for a natural object to reach its end. Hence, for Aristotle, if the principle of motion is external to the object, it immediately follows that the object is externally directed to an end. The same goes for those cases where the principle of motion is internal: a natural object must be internally directed towards its end. The closest analogy Aristotle thinks can be found to describe how nature works intelligibly in this manner is that of a doctor who heals himself, that is, who acts for the sake of his own health.[17]

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[17]*Physics* II.1 192b8-194b15 (trans. Barnes, 329-34), II.8 198b10-199b32 (trans.

Ockham readily accepts Aristotle's basic contention that natural things contain a principle of movement while artificial things do not. Rather than drawing out an analogy between the two based on teleology as Aristotle does, however, Ockham sets out simply to prove that there is no ontological difference between them. He argues, "everything having a nature is really natural; but every artificial thing really has a nature, because it has matter and form which are truly spoken of as nature."[18] Because plurality should not be posited without necessity, Ockham thinks that one ought not to suppose that the production of an artificial object involves the acquisition of a new form on top of the form(s) already naturally existing in it. Rather, one can sufficiently explain artificial things with respect to their local motion, which, as already noted, only involves the change of place of some already existing thing. In short, nothing distinct from natures is produced when an artificial thing comes to be; rather, artificial things are just natures having been locally moved by an artisan. For this reason, one can only speak of the 'generation' of an artificial object in a loose sense; strictly speaking, nothing new comes to be in its production.[19]

Ockham's construal of the art-nature distinction entails that the voluntary activity of the artisan is at once more restricted and more expanded than in Aristotle's *Physics*. On the one hand, as an efficient cause, a voluntary agent cannot infuse some matter with a new form. Already existing form-matter complexes can only be moved into a new spatial configuration with other already existing form-matter complexes. Building a

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Barnes, 339-41).

[18]*Brev. Phys.* II.1 (trans. 25).

[19]Ibid. (trans. 26).

house, for example, does not mean that the builder infuses some matter with a new form of houseness, nor does it mean that one affects the quality or relation (i.e., changes the accident) of some substance. Rather, building a house simply means that one has moved some previously existing substances (wood, stones, etc.) into a new place.[20] On the other hand, Ockham's tendency, in virtue of his razor, is to avoid explaining motion on the basis of the production of some new entity whenever possible. Because he favours local motion as the sole explanation of change, therefore, the field of territory on which voluntary agents operate has the potential to be quite enormous.[21]

Ockham thus believes Aristotle's art-nature distinction to obtain not between things but between intentions of the soul. While the terms supposit for the exact same thing in reality,[22] their nominal definitions are different.[23] What this means is that things produced naturally and artificially are not ontologically distinguished by different kinds of ends, but only semantically, by whether the description of a thing's current place is indexed to the activity of a voluntary agent. Something that has been moved from one

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[20]Ibid. (trans. 25-26).

[21]As Gordon Leff points out, "[I]n dispensing with the need for form at all in artificial things, [Ockham] was left with only matter and local movement as the elements in their generation, and the only two which have survived from Aristotle's classification" (*William of Ockham*, 580).

[22]When in personal supposition, that is. Supposition is the meaning a term acquires when in a proposition (*SL* I.63 [trans. 188]). There are three kinds: personal supposition occurs when the term refers to the thing in reality it signifies; simple supposition occurs when it refers to an intention of the soul; and material supposition occurs when it refers to a spoken or written word. This is the difference in the meaning of the term 'man' (*homo*) in "*man* is an animal," "*man* is a species," and "*man* is monosyllabic," respectively (*SL* I.64 [trans. 190]).

[23]*Brev. Phys.* II.1 (trans. 26).

place to another by a voluntary agent can be called 'artificial' in that respect, while something that has not been moved in such a manner can be called 'natural'. Because voluntary agents cannot cause any other kind of change than change of place, strictly speaking, anything at all considered in terms of its alteration, increase and decrease, and generation and decay, is by definition natural.

Fortune and Chance

Ockham's detachment of Aristotle's art-nature distinction from certain implications regarding natural teleology in his *Physics* commentaries is paralleled by his treatment of the principles of fortune and chance in his *Quodlibetal Questions*. Here, Ockham is at pains to discredit the analogy that chance is the occurrence of something outside the intention of natural agents just as fortune is the occurrence of something outside the intention of voluntary agents.[24] This would of course presuppose that natural agents act for the sake of an end too. In its place, Ockham argues that fortune and chance alike presuppose the activity of voluntary agents.[25] This means that the difference between fortune and chance cannot be between who (or what) is doing the intending, since, in both cases, only the voluntary agent's intentions are concerned. It is always someone acting contingently and freely whose actions produce an unexpected result. What then is the difference between them?

Ockham defines fortune as occurring "by reason of the fact that an effect that falls outside the intention of the free agent is brought about (i) by a natural cause and a free

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[24]*Quodl.* I.17 (trans. 79)

[25]Ibid. (trans. 77).

cause or (ii) by two free causes."[26] In the first case the activity of the free agent concurs with some natural inevitability, whereas in the second case it concurs with the contingent activity of another free agent. Suppose someone digs a hole for the sake of planting something and discovers a treasure. If that treasure exists in the ground as the result of natural causes (say if the treasure were a precious metal like gold), it would be an example of the former scenario. If, on the other hand, the treasure were buried in the ground by some other person acting freely (say if the treasure were gold coins), then it would be an example of the latter.[27]

An event that is said to be fortunate or unfortunate, therefore, is caused by the *direct* activity of at least one voluntary agent. Chance, on the other hand, "can occur immediately because of the causal influence of natural causes, but it nonetheless always occurs mediately and partially because of a free cause."[28] That is to say, while the immediate causes of a chance event can all be natural, at least one of these causes will always turn out to have been caused somewhere down the line by a voluntary agent. It is by virtue of the fact that the voluntary agent did not foresee what would happen as the eventual result of her action that the event is attributed to chance—not because it runs contrary to the supposed intentions of the natural causes involved. He gives the example of someone placing a garment on top of a horse, after which the horse runs towards a fire

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[26]Ibid. (trans. 78).

[27]Ockham himself uses the example of someone digging up a treasure only in the first case, but he fails to disambiguate it as I have done here. The example he supplies for the second case, perhaps a simpler one, is of a person who goes to the marketplace to see a friend and happens to run into his debtor who repays him (Ibid.).

[28]Ibid.

and the garment is incinerated. The immediate causes of the incineration are the horse and the fire, which act out of natural necessity. But since the mediate cause is the person who voluntarily placed the garment on the horse, the incineration of the clothes is said to occur by chance.[29]

Here Ockham meets an objection: does this not mean that chance is somehow dependent on fortune? In other words, does Ockham have to assume that someone would need to experience good or bad fortune in order for something to happen randomly afterwards? Ockham denies that this absurdity follows from his position. Just because both fortune and chance happen contrary to the intention of a voluntary agent does not mean that her immediate effects always happen contrary to that intention. That is only the case with fortune. In cases of chance, the immediate effect of voluntary agency could be exactly what was intended, which would make it neither fortunate nor unfortunate. The only requirement is that some subsequent thing caused by the voluntary agent's intended effect turns out to be unexpected. In the example he gives, the garment could have been placed on the horse quite purposefully, and days later something natural but unknown could have spooked the horse toward the fire.[30]

Ockham thus distinguishes fortune and chance based on the proximity of the involvement of the voluntary agent. In both cases, someone acting freely introduces an element of contingency into the series of events. On the one hand, a fortunate (or unfortunate) event has an immediate contingent cause; the person who discovers treasure

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[29]Ibid.

[30]Ibid. (trans. 79).

could have elected not to dig at all. On the other hand, the immediate causes of a chance event act out of necessity (the horse *had to* run, the fire *had to* burn the garment), but circumstances under which those necessary causes cause are contingent.

What sort of circumstantial influence can a voluntary agent have upon necessary causes? Judging from what Ockham says about the art-nature distinction, it would seem that the kind of example he has given (the garment *could have* been put elsewhere than on the horse) is the only one available. If the causal efficacy of voluntary agents in the production of artificial things is strictly limited to the local motion of already existing natural bodies, then it seems to follow that contingency can be introduced in the activity of natural things only through local motion as well. The chance element of natural causality is acquired as a kind of artificiality—that is, through the free activity of a voluntary agent changing the place where the causes will operate.

Can the argument that chance events always stem from the influence of free causes be enlisted by natural theology? In other words, does the existence of chance in the world presuppose that the world has been created according to the intentions of a free First Cause? Ockham thinks not. From the standpoint of natural philosophy, human agency is a sufficient postulate to explain the existence in the world of contingency and therefore of chance. This is because an effect only has to have a partial or secondary cause that is contingent in order for it to be contingent as well.[31] Thus, the change of place caused by a human being is enough to make any chance event itself contingent,

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[31] *Quodl.* II.2 (trans. 99).

strictly speaking.[32]

Natural Necessity

For a theologian hoping to find a neat demonstration of the existence of God, Ockham's account of chance and fortune proves disappointing. Moreover, even for an Aristotelian-trained natural philosopher expecting an explanation based on natural causality alone, Ockham's account seems to leave something to be desired. Ockham might be accused of not saying anything at all about the way in which natures behave independent of their manipulation by those acting with free will. The Aristotelian axiom that nature achieves its ends always *or for the most part* seems to admit that there may be a small class of cases where a natural being, on its own accord, fails to act according to the causes that usually obtain.[33] In light of this so-called 'Aristotelian optimism,'[34] the natural philosopher might demand that chance be invoked precisely to fill in the gap in the causal explanation of these rare events.

In the *Brevis Summa Physicorum*, Ockham notes that Aristotle does give a general description of chance and fortune as "causes *per accidens* in agents acting for an

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[32]The immediate causes can still be called necessary, however, by prescinding from the larger, contingent context (see pp. 52-53 in the previous chapter above).

[33]The way that Aristotle puts it in *Physics* II.5 is that chance events make up a *third* category on top of those things that happen always and those that happen for the most part, but this unnecessarily complicates things for the purposes here (*Physics* II.5 196b10-16 [trans. Barnes, 335]).

[34]This is an adequate description, so far as it goes, although here it is more the *remainder* to Aristotelian optimism, i.e., the bit *not* covered by 'always or for the most part', that is of principal concern. I am more interested in the part of the glass that the Aristotelian sees as empty, so to speak.

end and in those matters which happen rarely."[35] However, he immediately rules out any interpretation of this description that would count rareness as a distinct criterion in and of itself. Such an interpretation, it should be noted, would effectively split the description into two discrete halves, one of which trades in final causality, the other of which—the cases of rareness—does not. Instead, Ockham claims that "the reason that things are said to be rare is not because they rarely happen in beings, but because they rarely happen when a certain cause is posited."[36] In *Quodl.* I.17, he cashes this explanation out: the only reason the event rarely happens is that the circumstances of the operation of this "certain cause" are rarely contingent on the activity of a voluntary agent. Most of the time, the natural causes work independent of voluntary agency and therefore behave according to regularly observable patterns.[37]

Ockham's account of fortune and chance thus does in fact offer some characterization of natural causality as natural. For Ockham, everything that occurs as the result of natural agents occurs inevitably and necessarily. A nature behaves in a certain way because of the kind of nature it is. There can be no exceptions to this rule, since ceasing to behave in that way would be tantamount to ceasing to be that nature. What 'Aristotelian optimism' therefore *cannot* imply is that nature does not always act in the way that it is supposed to, and that chance explains the exceptions. The only purpose in qualifying natural causality with 'for the most part' is to accommodate those cases

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[35]*Brev. Phys.* II.5 (trans. 34).

[36]Ibid.

[37]*Quodl.* I.17 (trans. 78).

when a natural agent is impeded from behaving as it normally does. If this impediment is from a free cause, then one arrives at the account of fortune and chance already described.[38] If this impediment is from another natural cause, however, then the act of impeding is just as necessary as the act of the nature being impeded. The impediment of the activity of one natural agent by another cannot be an example of chance, because it is inevitable that such an impediment occur. Ockham cautions that we should not think that since the first agent *would have* acted had it not been so impeded, the situation as it stands is somehow contingent. No such possibility exists, strictly speaking, because things could not have happened other than the way they did. So long as it could not have been prevented, the event is not the result of fortune or chance.[39]

This characterization of natural causality explains why Ockham rules out rareness as a criterion for chance in and of itself. He simply does not think that rare but purely natural occurrences could have been prevented any more than the natural occurrences we are more familiar with. Ockham notes that no one bothers calling it the result of chance when a spring is unseasonably rainy. The reason we do not, he implies, is that we know there must be a purely natural and therefore necessary cause behind the weather, even freakish weather.[40]

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[38]The natural cause can be impeded without violating Ockham's dictum that voluntary agency is limited to local motion and therefore, strictly speaking, cannot affect generation and decay (or alternation, increase and decrease). For example, a person could indirectly impede the generation of a tree by picking up an acorn off the ground and placing it in a jar; the direct impediment would still be the natural elements of the jar.

[39]*Quodl.* I.17 (trans. 77-78).

[40]Ibid. (trans. 78).

Intelligibility and Determinism

By insisting that rare but natural events (or non-events) have purely natural causes, Ockham submits that there is no essential difference between them and natural regularities. This marks a significant departure from traditional Aristotelian physics, the effect of which is to replace the appeal to natural teleology with natural determinism. As noted earlier, the traditional Aristotelian model takes the intelligibility of the universe to imply a teleological structure. Nature usually achieves the end it intends because it acts according to observed regularities. As Aristotle says, without the final cause, all natural activity would be completely random.[41] The occurrence of occasional random events is the exception that proves the rule.[42] As the exception to regularity, therefore, rareness equals an exception to the achievement of an end. As such, it lies outside the bounds of the universe's intelligible structure, which is why chance must be invoked as a cause.

To Christians in the universities of the later Middle Ages, this Aristotelian line of reasoning held both promise and peril. On the one hand, that the exception proves the rule seems to suggest a certain argument for natural theology (like that mentioned at the end of the last section). On the other hand, that there could be an exception to intelligibility at all appears to contradict both God's omniscience and divine Providence. Solutions to this dilemma could be given without disturbing the basic logic involved, however. Thomas Aquinas, for example, argued that an event appears to be the product of chance at the level of a lower cause (i.e., in the realm of natural philosophy), but it

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[41]See, e.g., *Metaphysics* II.2 994b14-16 (trans. Barnes, 1570).

[42]See, e.g., *Physics* II.8 199a2-8 (trans. Barnes, 337).

turns out to be fully intentional at the level of a higher cause (i.e., in the realm of theology).[43]

Ockham, by contrast, refuses to follow this line of reasoning by saying that rareness is in principle just as intelligible as regularity. The only problem a rare event presents to the natural philosopher is the merely practical difficulty of how to study something that is experienced so infrequently. Ockham is confident however that any natural event whatsoever can be explained by recourse to the system of natural causes, even if the natural philosopher does not yet know what the relevant ones are in a given instance. Ockham does not need to appeal to an exception to prove the rule because he does not think that the intelligibility of the physical universe rests on its teleological structure. Instead, he takes it as a consequence of the sheer determinism of natural activity: if something is natural, it is necessary, and if it is necessary, then it has causes that can be known. The only exceptions to this rule are not from a *lack* of natural causes but from their *supplementation* by a different type of cause altogether: the contingent causality of a free will. Only things that are "not merely natural"—i.e., artificial items produced by voluntary agents—require a teleological explanation for why they are determined to act in a particular way.[44]

The Principle 'Everything That Is Moved Is Moved by Another'

One of the principles governing natural necessity is the Aristotelian dictum, 'everything that is moved is moved by something'. The principle comes up in books VII

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[43]*ST* I.116.1 (trans. Pegis, 1:1068-70).

[44]*Quodl.* II.2 (trans. 99).

and VIII of the *Physics*. In both cases, Aristotle employs it together with the principle that a series of movers cannot proceed to infinity to prove that there must exist a being which enacts the first movement while not being moved itself. There are differences between his two accounts, however. In *Physics* VII.1, Aristotle distinguishes between things that move themselves and things that are moved by other things. He argues that all movement falls under these two classes, and hence that the principle follows as a conclusion.[45] In *Physics* VIII.4, Aristotle distinguishes instead between natural and violent motion. Aristotle thinks that all examples of self-movement count as natural, while there are both natural and violent types of movement induced by another. He suggests that the difference between them is based on whether the thing is moved contrary to its natural inclination.[46] Again, from the fact that all movement falls under these two classes, Aristotle concludes that all motion is moved by something.[47]

From Aristotle's discussion certain philosophical and hermeneutical issues emerge which would be explored by his medieval commentators. First, Aristotle seems to render self-movement as a passive power by considering it under the auspices of 'being moved by something'. He argues, for instance, that self-motion is the really the movement of the whole as a result of some of its parts being moved by other parts. Thus, the general principle can just as easily be rendered '. . . is moved by *another*'—as it generally was in the Middle Ages. The problem then becomes how to resolve this with

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[45]*Physics* VII.1 241b24-242a5 (trans. Barnes, 407-08).

[46]*Physics* VIII.4 255b15-17 (trans. Barnes, 427).

[47]Ibid. 255b32-256a3 (trans. Barnes, 427).

the more active description of nature as 'containing in itself a principle of movement' in *Physics* II. Second, there is also the matter of linking this principle of natural philosophy to the basic argument in metaphysics that nothing can reduce itself from potency to act because it cannot be both potential and actual with respect to the same thing. Third, Aristotle's specifically Christian commentators were faced with the problem of its compatibility with the tenets of their faith. On the one hand, 'everything that is moved is moved by another' seems to provide a rational proof for the existence of God, so long as God is equated with the Prime Mover. On the other hand, Aristotle argues at least partly on the basis of this principle that motion and thus the universe are eternal, which seems to contradict the doctrine of *creatio ex nihilo*.[48]

Ockham is quite willing to accept this principle of natural philosophy, but only so far as it will allow him to explicate natural necessity as he understands it. He does, for instance, think it carries the argument that no motion can be preceded by rest only. He realizes that for Aristotle this proves the eternity of motion on the basis that "if the first movable thing began to be moved after it was at rest, then there would be motion before the first motion."[49] Ockham explains that the argument holds because "to remove something preventing motion or put in place something promoting motion is a motion; but there would not be a movement from rest to motion unless what is impeding it was removed or what was promoting it was put in place, as is clear in agents who act freely

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[48]I owe these points to Calvin Normore, "Ockham, Self-Motion, and the Will," in *Self-Motion: From Aristotle to Newton*, ed. Mary Louise Gill and James G. Lennox (Princeton, NJ: Princeton University Press, 1994), 291-93.

[49]*Brev. Phys.* VIII.1 (trans. 118).

and in agents who act necessarily by a necessity of nature; therefore, [etc.]"[50] Yet he immediately exempts the free cause just mentioned, since it can in fact act after a period of rest without the removal of an impediment or any other change in conditions.[51] Because Aristotle did not realize that the Prime Mover is just this sort of cause, he concluded—rightly, given the principles of natural philosophy—that movement is eternal. But Christians are better acquainted with the Prime Mover by faith and thus know that the universe was created in time.[52]

Ockham's manner of exempting the free cause from this argument invites the objection that he has violated the principle 'everything that is moved is moved by another'. If a voluntary agent can begin or cease to will something without any change in its surroundings, it would seem that it moves without being moved by anything. Ockham's response is that the principle has only restricted application. Aristotle's intention in formulating it was only to speak of motion, properly speaking, which refers only to those changes "in which the movable thing is extended."[53] This includes the divisions examined at the beginning of this chapter: generation and decay (change in

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[50]Ibid. (trans. 118-19).

[51]It is not clear from Ockham's remarks here whether he thinks Aristotle was just wrong in presuming that free agents cannot proceed from rest to motion without the removal of an impediment, or if he would consider Aristotle's presumption to be true but in only a benign sense—for example, that a free agent can remove the impediment itself. The latter interpretation is favoured by Ockham's tacit agreement with the Scotist point that that the intellect's failure to cognize something as an end is an impediment to the volition of that end, which the will itself can remove (quoted in *Sent.* I.1.6 [trans. 404]; cf. Ockham's comments, ibid. [trans. 407]).

[52]*Brev. Phys.* VIII.1 (trans. 119).

[53]*Brev. Phys.* VII.1 (trans. 105).

substance), alteration (change in quality), and local motion (change in place). But this entails that the principle in question only applies to natural bodies, as well as the vegetative and sensitive soul, which are co-extensive with the body.[54] The intellectual soul, to which the terms 'intellect' and 'will' both refer,[55] is not extended because it is indivisible.[56] Hence, Ockham is content to call the will's self-movement a "counter-example" to the principle,[57] since Aristotle did not intend it to apply to the intellective soul anyway. Strictly speaking, the intellectual soul is called immobile.[58]

Ockham also makes some qualifications for the application of this principle to extended things. In particular, he does not think that Aristotle means to deny certain instances of self-movement. Borrowing a distinction from Averroës, Ockham argues that 'to be moved by another' can be taken in two senses: another as distinct in number, or another as distinct in place. Not all things that are distinct in place are moved by another, strictly speaking. There are two cases where a type of movement by something not distinct in place obtains in the natural world. In the first place, the heavenly intelligences

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[54]*Brev. Phys.* VIII.2 (trans. 123).

[55]See the section "Putting Will and Intellect Back Together Again," in the previous chapter, pp. 70-78.

[56]*Brev. Phys.* VIII.2 (trans. 123); but cf. *Quodl.* I.12 (trans. 61-63), where Ockham grants that the intellective soul is in a sense co-extensive with the body, although it is not divisible.

[57]*Quodl.* I.16 (trans. 76); it should be noted that here the principle is expressed in the metaphysical terms of potency and act. This likely accounts for the discrepancy between Ockham's remark here that it applies to all natural agents, spiritual as well as corporeal, and his remark in *Brev. Phys.* that it applies only to extended natures (*Brev. Phys.* VII.1 [trans. 105]).

[58]*Brev. Phys.* VIII.2 (trans. 123).

move the heavenly spheres. While the former are numerically distinct from the latter, they are not distinct in place, strictly speaking, because the intelligences are spiritual and hence do not occupy a place. Second, animals are also capable of moving themselves in a certain sense, because the part of the animal that moves is not distinct in place from the animal itself. Nevertheless, Ockham thinks that animal movement is not totally caused by itself and thus something locally distinct from the animal counts as a cause of its movement as well.[59]

These cases notwithstanding, Ockham thinks that all local motion is demonstrably motion by another.[60] Because not all motion by another is by another distinct in place, as just noted, it would seem that what is proved here is motion by another distinct in number. Following Averroës, Ockham thinks that motion by another distinct in number is a matter of natural necessity.[61] In order to avoid an infinite regress, therefore, all local motion must originate in some cause that does not itself occupy a place: a prime mover of sorts.[62] The two primary candidates for a non-extended (and hence numerically but not

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[59]Ibid. (trans. 126).

[60]*Expos. Phys.* VII.2 (OPh V, 608); for a translation, see Normore, "Ockham, Self-Motion, and the Will," 301 n. 26.

[61]*Brev. Phys.* VIII.2 (trans. 126).

[62]Normore points out this argument in his essay, but he does not pick up on the difference between something numerically or locally distinct. For this reason he makes claims that strictly speaking Ockham would not accept. For example: "A locally moved thing can be moved by a part, and that part by another, and so on, but Ockham follows Averroës in suggesting that the chain must eventually lead outside the original moved body" (Normore, "Ockham, Self-Motion, and the Will," 301). It is not clear that Ockham thinks animal self-movement can be traced back to something 'outside' its body, if this implies that the cause occupied another place. In the case of rational animals in

locally distinct) cause of local motion have already been mentioned. On the one hand, if the local motion is caused necessarily, it is probably caused by a heavenly intelligence. On the other hand, if the local motion is contingent, it originates in the activity of an intellective soul.[63] In other words, the principle holds regardless of whether the locally moved object is natural or artificial. And since Ockham thinks that local motion does not involve the acquisition of any new form, here the principle establishes a chain of strictly efficient causality.

Ockham's restriction of 'everything that is moved' to 'every *extended* thing that is moved' has serious consequences for natural theology. Because neither the heavenly intelligences nor the intellective soul are extended, one cannot prove by reason alone that they are moved by something.[64] But these unextended movers are the primary candidates for causing change in bodies in the universe, as we have seen. The result is that little or no room is left for God to fulfill the role of an efficient cause.[65] As Ockham writes, "it cannot be sufficiently proved that it is not the case that there are many [first] efficient causes such that none of them is causable by, producible by, or in any way dependent upon another of those first causes."[66] The kind of ultimate Prime Mover God is known to

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particular, the cause of their self-motion can be their wills, which are not 'outside the body' in the strict sense.

[63]*Expos. Phys.* VII.2 (*OPh* V, 698).

[64]*Quodl.* II.1 (trans. 93).

[65]Indeed, the only room that Ockham permits for God to be an efficient cause is on the basis that "he would be needlessly posited if he could not effectively cause anything in the universe" (Ibid. [trans. 94]).

[66] Ibid.

be by theology, who causes the movement of all the heavenly intelligences and thus originates all efficient causality, is simply not demonstrable by natural philosophy. Instead, the picture it provides is of numerous coexisting chains of efficient causality originating in multiple heavenly intelligences.[67] Thus, not only does Ockham think that it must be taken on faith that the Prime Mover is a free cause—it must also be taken on faith that there is only a single one of them.[68]

Natures at Rest?

Ockham thinks that the principle "everything that is in motion is moved by another thing" is established with respect to inanimate things by Aristotle's argument, "that which cannot rest of itself cannot move of itself."[69] According to Ockham, this argument does not disallow that inanimate objects are in some sense able to move themselves. Aristotle only means to deny that an inanimate object is able to stop its own motion before the motion reaches its end. A heavy object cannot stop falling until it reaches the ground, for example. But once the inanimate thing has reached the end of its movement, it is capable of resting on its own accord. Ockham concludes that natural bodies contain in themselves "at least a passive principle" of their own motion and rest.[70]

By considering the natural necessity of inanimate things in terms of their inability

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[67]Ibid. (trans. 96).

[68]For more discussion on Ockham's treatment of the argument for a first efficient cause in *Quodl.* II.1, see Normore, "Ockham, Self-Motion, and the Will," 301-03.

[69]*Brev. Phys.* VIII.2 (trans. 122); cf. *Physics* VII.1 241b32-242a14 (trans. Barnes, 408).

[70]*Brev. Phys.* VIII.2 (trans. 124).

to cease moving prior to the *end* of their motion, Ockham appears to presuppose some sort of natural teleology. One might be led to believe that Ockham thinks the reason a natural body cannot rest of itself is that it has a fixed final cause, and until that final cause is reached, the natural body must continue to seek it. This natural inclination is present regardless of the nature's circumstances—say, when the end is actually acquired or when an impediment to acting is in place. The contrast with creatures with free wills, then, would be that they can choose when and where to seek their final cause.

Drawing these sorts of consequences from Ockham's argument here would be a mistake, however. As noted in the previous chapter, for Ockham, the will's freedom involves much more radically the ability to choose anything whatsoever as its final cause. Hence, the distinction between natural and voluntary agency does not stand on whether the means to an end are determined or not. Furthermore, Ockham's intent here is not to contrast natural and voluntary agency, but the movement of animate and inanimate things. He remarks that unlike inanimate things, something that is living is capable of stopping prior to the end of its motion—not counting certain exceptions (such as jumping) which cannot be stopped midway through.[71] If it were the case that Ockham's point rests on a traditional notion of final causality, this would mean that he has inadvertently lumped all animate things in with free agency. This is highly unlikely, given that Ockham clearly defines freedom in the previous chapter of the same work. There he says quite explicitly that the difference between voluntary and natural agency cannot be based on the fact that the former can act in opposite ways, because even

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[71]Ibid.

animals can do that. Rather, it is the ability to begin or cease acting without any change in external conditions that defines freedom.[72]

In addition, Ockham denies that natural inclinations are something over and above the actual activity of a thing. The picture of natural causality usually taken for granted is inaccurate. It assumes that an impeded inanimate object is somehow at rest until the impediment is removed. A natural inclination is then invoked to explain its change from rest to action. Ockham, however, argues that what is called natural inclination is nothing other than the agent acting according to natural necessity. In those cases where an impediment is involved, the natural agent is still acting, though not very successfully. For example, a heavy object that is placed on a beam high above the ground is not at rest but is actively pushing against the beam. This is why, if the beam is weak, the heavy object will eventually break it and fall to the ground.[73]

By arguing that natural inclination is reducible to act, Ockham in effect reverses the traditional explanatory priority of teleology over activity in natural agents. That is to say, he does not follow the order of asking, 'what is its end?' and then asking 'what is it doing?' based on the response. Such an explanatory sequence, it should be noted, limits the second answer to three options: possessing its end, actively seeking its end, and being prevented from seeking its end. Ockham, however, thinks that the question, 'what is it doing?' comes second in explanation only to 'what is it?' (a question of essence, i.e., formal and material causality) and 'what are the sorts of things going on around it?' (a

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[72]*Brev. Phys.* VIII.1 (trans. 119).

[73]*Quodl.* III.22 (trans. 241).

question of circumstance, i.e., efficient causality). 'What is its end?' is thus minimized to a matter of 'how is the activity going to end?'

Ockham's argument that inanimate objects cannot cease movement prior to the end of that movement, therefore, is just a reiteration of his theory that they must necessarily act according to the sorts of things that they are. This is the import of Ockham's point that they contain at least a passive principle of their own motion. The difference between the movement of animate and inanimate things, then, is that the former occasionally stops in the middle of an action involved, while the latter never does—not even when it is impeded on the way, strictly speaking. In both cases, the action could not have been otherwise, since it is the result of purely natural, necessary causes.

The Final Cause in Nature

Ockham's natural philosophy as it has been explored here has consistently and deliberately avoided using teleological explanations in nature. To *recap*: (1) Ockham does not claim that natural things seek an end based on an analogy with artificially-induced movement. (2) He does not define chance vis-à-vis the end of a natural agent. (3) He does not link natural inclinations to the final cause of a natural agent. In each case, Ockham falls back instead on his understanding of natural necessity: that things in nature could not happen otherwise than they way they do, because all natural agents act necessarily according to the sorts of things they are. As Ockham says, "You might ask:

Why does the fire heat the wood rather than cool it? I reply that such is its nature."[74] It is apparent, then, that the activity of natural agents is automatically elicited by the combination of the sort of nature the agent is with the given configuration of efficient causes and/or impediments acting on it. Whether this configuration has been affected by the activity of a voluntary agent determines whether the activity that results counts as natural or artificial (or chance). In short, natural causality seems to be sufficiently explained by formal, material, and especially efficient causes. What causal role, if any, do ends play in natural activity according to Ockham?

Natural Teleology and Natural Theology: Tendencies and Inconsistencies

Ascertaining what Ockham thinks about natural final causality is not a straightforward task, unfortunately. Unlike, say, his doctrine of the will's freedom explored in detail in the last chapter,[75] a single, consistent position does not seem to emerge from his various discussions of the topic. Marilyn McCord Adams has meticulously documented the conflicts and congruities among the relevant texts in a recent article entitled, "Ockham on Final Causality: Muddying the Waters."[76] She argues that recent interpreters have offered too tidy a view of Ockham's teleology because they "hypothesize the consistency of Ockham's views about final causality across all of his

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[74]E.g., *Quodl.* II.2 (trans. 99).

[75]See chap. 1, pp. 47-49 above.

[76]*Franciscan Studies* 56 (1998): 1-46. The relevant passages in Ockham's *opera* are, in reconstructed chronological order, as follows: *Sent.* prol., 5, 11; *De Fine*; *Summula Philosophiae Naturalis* II.4, 6; *Brev. Phys.* II.6; *Expos. Phys.* II.12-13; and *Quodl.* IV.1-2.

genuine works."[77] Adams also finds it unlikely that an interpretation based on some kind of development in Ockham's thought would be any more successful, since all his works were probably written within a period spanning less than a decade.[78] She suggests instead that a closer approximation to Ockham's view will only be achieved by a careful recognition of both the inconsistencies and the deeper unities that are present across Ockham's works.[79]

Adams herself detects a "radicalizing tendency" in Ockham's thinking that favours the strict separation of voluntary and natural causality and downplays the significance of final causality in the latter. As with many of the topics that have been explored, the boldest formulation is to be found in Ockham's *Quodlibetal Questions*.[80] As discussed in the previous chapter,[81] Ockham defines the final cause there in terms of its passive, reciprocal relation to the efficient cause: "the causality of an end is nothing other than its being loved and desired efficaciously by an agent, so that the effect is brought about because of the thing that is loved."[82] The causality of the agent, then, is nothing other than its loving and efficaciously desiring the end. But (as also noted in the

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[77]Adams, "Muddying the Waters," 7.

[78]Ibid., 40.

[79]The final two sections of Adams' paper go some length in this direction by offering a list of six "streams of persistent concern" and three innovations represented in Ockham's thought (Ibid., 39-46).

[80]Ibid., 8.

[81]See "The Will's Choice of Ends," in chap. 1, pp. 54-57 above.

[82]*Quodl.* IV.1 (trans. 245).

last chapter[83]) loving and desiring are precisely those activities that define the intellective soul as a 'will'. Thus, by construing the end as the object of love/desire, Ockham confines the operation of final causality to voluntary agents who by definition possess a will, and freely choose that for the sake of which they will act.

What then about the final causality of natural agency? Later on in the same discussion, Ockham argues that because a natural agent does not appear to deliberate on what end to seek, reason unaided by faith does not provide sufficient grounds to conclude that they actually have a final cause at all. Recall that Ockham thinks that ends are necessary for the explanation of voluntary agents because the will is neutral with respect to its effects. Because voluntary agents are not constrained by natural necessity to act in some set fashion in a given set of circumstances, one must posit an end to explain why they act the way they do. Natural agents, however, are by definition so constrained, and therefore Ockham suspects that any appeal to final causality is superfluous. That is to say, one would only need to claim that a natural action has a final cause when faced with the experience of the natural agent's occasional failure to perform such an action without the existence of such an end. But such a counterexample is simply not available to the natural philosopher.[84]

Nevertheless, Ockham takes it as a truth of faith that every effect has a final cause. This means all natural agents "have an end fixed in advance by God, who is a

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[83]See "Q. Is the Will Nobler than the Intellect? A. No (Yes)," in chap. 1, pp. 72-75 above.

[84]This argument is made more explicitly in *Quodl.* IV.2 (trans. 252).

superior agent."[85] Since the question Ockham is addressing in Quodl. IV.1 is whether every effect has a final cause distinct from its efficient cause, he concludes that the answer is no, not always. Ockham seems to be thinking here of the reference in the book of Revelation to God as Alpha and Omega, the first and the last. God, in other words, is Prime Mover twice over, as both the efficient cause (i.e., creator) of all and the final cause whom all seek.[86] It would then follow that the only time that final and efficient causes could be distinct is after the Fall. Only voluntary agents (who are morally responsible for their actions and hence capable of sin) can fail to act for God's sake above all and thus fail to have the same final cause as their efficient cause.[87] But if this is indeed what Ockham has in mind, then it would be a mistake to think that he is working with an equation of 'natural philosophy + theology = the kind of teleological explanation one finds in Aristotle's *Physics* (with the added insight that it was God who put those ends there in the first place).'[88] This equation, it should be noted, captures the spirit of much of what falls under the heading of the Middle Ages in the modern genealogy of

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[85]*Quodl.* IV.1 (trans. 248).

[86]Keeping in mind, of course, that a final cause is only a "metaphorical" mover for Ockham.

[87]This interpretation is supported by Ockham's remark that the final cause is always nobler or as noble as the other causes except in those cases where the will does not act according to right reason (*Quodl.* IV.1 [trans. 248-49]).

[88]As Adams points out, this cannot be Ockham's position because "he denies that the 'contents' of natures, as opposed to their real existence, are subject to the Divine will. . . . Thus, what constitutes a naturally completing or perfecting form would be independent of the Divine will as well" ("Muddying the Waters," 36).

teleology explored in the introduction.[89] On this account, Aristotle's teleological account of natures is left incomplete because it does not answer the question of who cognizes their ends. Natural theology then proves God to be the required cause of natural agency.

Ockham explicitly rejects this sort of natural theology not because natural ends do not need to be cognized, but more radically on the grounds that natural philosophy need not appeal to such final causes in the first place.[90] But his granting that natures do have a final cause from the standpoint of *revealed* theology does not mean that he winds up with the same textbook 'medieval' account of the universe, albeit with a slightly different disciplinary division of labour. For Ockham, theology does not *complete* natural philosophy so much as *complement* it. Theology, that is, does not peer into the inner workings of nature to reveal that it acts teleologically *rather than* by 'bare' necessity; it fully *concedes* 'bare' necessity as demonstrated by natural philosophy and determines instead that such necessary activity is ultimately directed by God towards Himself. Theology does not tell us that rain falls for the sake of making the ground wet; instead, natural philosophy tells us that rain falls because it is rain, and theology tells us that such rain falling is for the glory of God. The only kind of teleological explanation added to natural philosophy by theology is not Aristotelian at all but the biblical intuition that all creatures give praise to their Creator. Hence, Ockham's aim here is not to re-establish from within theology that natures are truly natural in the Aristotelian sense of being internally directed to an end. Rather, theology situates natural necessity 'as is' within a

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[89]See pp. 7-13 above.

[90]*Quodl.* II.2 (trans. 98-99).

greater horizon of contingency, in which God did not have to create natures at all, nor direct them towards his glorification.

Ockham's argument is met with a series of objections on behalf of traditional Aristotelian teleology. His replies to them reiterate his commitment to natural necessity as a sufficient explanation for natural philosophy. Reconstructed in dialogue form, the objections and Ockham's responses run as follows:[91]

> *Objection*: The end answers the question, 'for what reason has *x* happened?' which can be asked of any *x*.
> *Reply*: 'For what reason?' is not an appropriate question to ask of natural events, because it presumes that a voluntary choice to do *x* has been made. The only 'reason' that a natural agent acts a certain way is that it is a certain kind of natural agent.
> *O*: An end is required to explain why something proceeds from rest to movement.
> *R*: In the case of natural agents, no other explanation is needed than that whatever was obstructing its movement has been removed.
> *O*: Without an end, all agents would act by chance.
> *R*: This is only true for voluntary agents, because they are not predetermined to any one effect. Natural agents, on the other hand, are predetermined in this way.
> *O*: But natural agents are predetermined to act for the sake of a certain end!
> *R*: No, a natural agent is predetermined by its nature, not by an end. What sort of thing it is "necessarily requires"[92] that it take the sort of action it does.
> *O*: Take away ends, and you take away the possibility for error, because one thing is not intended more than another.
> *R*: Fair enough, but there is no intention in natural agents anyway, and so "no error, properly speaking."[93]

Ockham's replies bring out both aspects of his 'radicalizing tendency': to sharply distinguish between voluntary and natural agents—to the extent here that it involves denying not only ends to the latter but reason and error as well—and to base natural

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[91] *Quodl.* IV.1 (trans. 247-50).

[92] Ibid. (trans. 249).

[93] Ibid. (trans. 250).

necessity not on the ends towards which things are directed but rather on the kinds of things that they are.

Because many of these objections echo passages of the *Physics*, it is perhaps not surprising that Ockham's dramatic replies to them here do not sit easily with what he says about teleology elsewhere, when he is commenting on Aristotle's work. In the *Brevis Summa Libri Physicorum*, for example, Ockham has no qualms with the legitimacy of the question, 'for what reason?' within the bounds of natural philosophy; he even appears to grant that such a question demands a teleological answer.[94] Furthermore, *Brev. Phys.* II.6 contains a list of arguments against the existence of final causality in nature taken from the ancients along with their refutation by Aristotle, which seems to play out the exchange in Quodl. IV.1 in reverse. Ockham cites first of all the argument that "that which does not happen on account of an end which would nonetheless happen, if no end were intended; but all things which happen, happen that way."[95] Aristotle's reply, as Ockham sees it, is that although the end is hidden from us "because of matter," this does not mean that nature does not act for its sake. Similarly, to the argument that if the same thing can act for the sake of two contrary ends, then it acts for the sake of neither, Ockham simply denies that natural things can act towards contraries in this manner. The last ancient argument against teleology he gives is that anything that does not deliberate does not seek an end because it does not know an end. His reply is that voluntary agents occasionally do not deliberate and yet they still act for the sake of an

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[94]*Brev. Phys.* II.6 (trans. 36).

[95]Ibid. (trans. 35).

end (apparently, activities like sewing and weaving are of this sort); therefore, it is not repugnant to say the same of natural agents.[96]

Interpreting Ockham Interpreting Aristotle

What is to be made of these two passages, *Quodl.* IV.1 and *Brev. Phys.* II.6? The inconsistencies in Ockham's view warned about by Adams seem here to sharpen to the point of contradiction. While admitting that a complete harmonization may well be impossible, a few things can serve to alleviate some of the tension, at least. There is first of all the doubled layer of ambiguity that confronts anyone attempting to extract Ockham's own position from his commentaries. Not only must one exercise the regular sort of care in ascribing views to a medieval commentator whose primary intent is to give Aristotle's own opinion, there is also the added difficulty that on *this* commentator's interpretation, Aristotle himself is a commentator of sorts on the views of the ancient (i.e., pre-Socratic) philosophers of nature. Ockham reads Aristotle as employing a dialectical method of exposition, providing the existing arguments for and against a position without necessarily committing himself to any of them.[97] Oftentimes this method forces Aristotle to adopt the language of his predecessors in his analysis—language that he himself intends only metaphorically. For example, Ockham maintains that Aristotle is as much an ontological individualist as he is.[98] Any evidence to the contrary—any time Aristotle seems to be saying that universals are things in the world

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[96]Ibid. (trans. 35-36).

[97]See *Brev. Phys.* III.3 (trans. 46), IV.1 (trans. 55).

[98]Ockham thinks that *Metaphysics* VII establishes Aristotle's commitment to nominalism (*Brev. Phys.* prol., II [trans. 2]).

rather than intentions of the soul—needs to be glossed as nominalist in spirit if not in letter. The question for the modern interpreter of Ockham, then, is to what extent Ockham follows Aristotle in the method as well as the content of the *Physics*. In particular, how much of the teleology in Ockham's *Physics* commentaries is just Ockham speaking metaphorically in order to accommodate himself to Aristotle, who is himself doing the same sort of thing? How many of the arguments for and against teleology are just reported, and how many of them does Ockham himself find cogent?

The second of these questions is further complicated by Ockham's adherence to the Aristotelian axiom that whatever is known *per se* by a particular science cannot be proved by that science.[99] It can sometimes be proved by a higher science, however. Because motion is the principle of natural philosophy, it and all associated principles, including causality, cannot be proved within the science itself. This means that for Ockham, Aristotle's arguments in the *Physics* on behalf of these principles admit of two possible interpretations. On the one hand, they can be donated from metaphysics. Aristotle's refutation of Parminides, for example, must be metaphysical precisely because Parminides denies motion exists.[100] On the other hand, the arguments can be made from within natural philosophy itself, but then they are only persuasive and will not hold against those who deny the principle in question. According to Ockham, Aristotle's arguments for the existence of form and matter fall into this class.[101] So do his arguments

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[99]E.g., *Brev. Phys.* II.1 (trans. 27).

[100]*Brev. Phys.* I.1 (trans. 10).

[101]*Brev. Phys.* II.1 (trans. 27).

for the proposition, 'place exists.'[102]

On two separate occasions in the *Brevis Summa Libri Physicorum*, Ockham points out that the proposition, 'nature acts for an end,' is also known *per se* by natural philosophy.[103] Following Averroës, he places any arguments for or against the existence of final causality as such into the second type of argumentation, i.e., those made on behalf of the principles of natural philosophy from within the science itself. This means that they are not conclusive. Speaking about Aristotle's refutation of the ancient anti-teleological arguments, Ockham concludes, "Therefore, the Philosopher argues according to other thinkers' ways of speaking and their testimony; consequently, it is not necessary to consider this passage as an opinion of Aristotle, although some of the things he says are true."[104] This is a remarkable place in which to make this comment, since it suggests that Aristotle is only refuting the ancients on their own terms! Again, the difficulty for the modern interpreter of Ockham is how to sort out which things Ockham thinks are true to Aristotle and which are not when Ockham does not bother to differentiate them.

End as Limit or Goal

These ambiguities in Ockham's treatises of natural philosophy go some length towards explaining the differences that exist among them and with his other works on the subject of teleology. At the very least, the lack of hermeneutical clarity here does recommend that one interpret the ambiguous passages in light of what he states more

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[102]*Brev. Phys.* IV.1 (trans. 55).

[103]*Brev. Phys.* II.I (trans. 27), II.6 (trans. 35).

[104]*Brev. Phys.* II.6 (trans. 35).

unequivocally elsewhere. In lieu of a single, consistent position expressed throughout his works, then, it seems that one would not be unjustified in taking Ockham at his boldest—in the *Quodlibetal Questions*—for his most definitive position, while recognizing that he may not have travelled fully down that path at other times. One can therefore conclude that Ockham offers very little room, perhaps no room at all, for teleology in the context of natural philosophy.

This does not yet do justice to the kind of reconciliation that may be possible amongst Ockham's remarks on teleology, however, since it does not exhaust the resources available for that purpose in the *Quodlibetal Questions*. In *Quodl.* IV.2, Ockham addresses whether it can be proved that God is the final cause of some effect. Given what he has just said in *Quodl.* IV.1, it seems apparent that the answer would have to be a qualified yes: granting that voluntary agents, and only voluntary agents, exhibit teleological behaviour, some subset of them (i.e., the ones following right reason) can be shown to have God as their final cause. Indeed, this is eventually what Ockham says, but not before he distinguishes between equivocal senses of the term 'end'. He writes, "[T]here are two kinds of end, viz., (i) an end that is loved and fixed beforehand by a will, as when one acts for the sake of himself as a loved one or for the sake of a friend as a loved one, and (ii) an end that is intended by the agent and which, even though it is the first in intention, is nonetheless the last in execution; and such an end is always either the end product that is produced or the operation that is produced."[105]

These can be called the definitions of end as 'goal' and as 'limit', respectively.

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[105] *Quodl.* IV.2 (trans. 251).

Ockham believes that the present question of whether God is the final cause of some effect can only refer to a 'goal'-end. He proves this by process of elimination: God cannot be considered a 'limit'-end because then He would be something posterior to the agent in the same way an effect is posterior to its cause.[106] Therefore, the aim of question at hand is to demonstrate whether He can be a 'goal'-end (and for voluntary agents acting according to right reason, He is). Furthermore, Ockham's arguments against natural teleology in *Quodl.* IV.1 (the gist of which he presents again[107]) must be made at the 'goal'-level as well; after all, the definition of end as 'goal' is virtually identical to the one given there. Hence, here Ockham leaves open some room to discuss natural teleology in the sense of 'limit' rather than 'goal'.[108]

Ockham's admission of this equivocal usage of 'end' would seem to offer the best means of interpreting the seemingly contradictory passages regarding teleology in his works.[109] To the extent that Ockham is willing to accept arguments on behalf of natural

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[106]Ibid.

[107]Ibid.

[108]Admittedly, Ockham's strictures on natural teleology in *Quodl.* IV.1 are not wholly compatible with his allowance for natural ends in the 'limit'-sense in *Quodl.* IV.2, insofar as he allows for natural agents to be said to have intentions in the latter (something he explicitly rules out in the former). Perhaps all that can be said on this score is that the Ockham of *Quodl.* IV.1 might be willing to distinguish between equivocal senses of 'intention' in the same way the Ockham of *Quodl.* IV.2 does with 'end', and could accept that natural agents have intentions in a loose sense that preserves the radical distinction between voluntary and natural agency.

[109]This seems to be the approach taken by Armand Maurer (*The Philosophy of William of Ockham in the Light of Its Principles*, Studies and Texts, no. 133 [Toronto: Pontifical Institute of Mediaeval Studies, 1999], 412-17), although he does not appear to have read Adams's article and simply assumes that Ockham's position is fully consistent.

teleology as at least persuasive (a difficult interpretive point in its own right), he probably thinks of them as confirming only the 'limit'-sense of end. Indeed, referring to the termination-point of a necessary activity as a final cause may well be part of the 'metaphorical' language that Ockham thinks Aristotle employs to accommodate himself to his predecessors. The 'limit'-sense of end, it should be noted, is fully consonant with Ockham's understanding of natural necessity because it is completely subordinate to it. Where the end as 'goal' would be the *grounds* for action in just the traditional Aristotelian manner that Ockham deliberately bars from natural agents, the end as 'limit' is just a *consequence* of that action. In other words, the end-as-limit does not establish that natural activity exists in virtue of some other thing. On the contrary, it shows that natural activity unfolds in a necessary way in virtue of the the kind of thing the natural agent is. The final cause in the sense of 'limit' thus points to the priority of the other three causes in explaining natural necessity.

Two Paradigms, Two Analogies

It would thus appear that Ockham works with two different scientific paradigms for natural and voluntary agents. Voluntary activity is not naturally determined, and thus one needs to know which end has been freely selected in order to understand its motion. The scientific explanation of voluntary activity involves appeals to the objects which have been set up as ends and the (local) motion set in place for the sake of that end. Natural activity, on the other hand, is explained first of all by the type of thing that is doing the acting and the types of things causing it to act. This includes an assessment of the natural and/or voluntary agents responsible for its current location.

The differences between these two paradigms are especially marked in their explanations of the transition between motion and rest. If a voluntary agent proceeds from rest to motion, one may deduce that it has chosen a new final cause for itself. The primary reason one can give in the case of a voluntary agent stopping its motion prior to the acquisition of its goal is that it has abandoned its goal for the moment. On the other hand, if a natural agent stops moving before reaching the end of its activity (in the 'limit'-sense), this must be explained in terms of other agents obstructing its movement or moving it violently.[110] The only explanation one requires when a natural agent begins to move is that whatever was preventing it from moving according to its nature is no longer present.[111]

It is worth returning here to Ockham's rejection of Aristotle's analogy between art and nature. For Aristotle, artificial things have an end fixed externally by an artisan. Natural things, on the other hand, act *as though* they have an end fixed in this way. But because they contain the principle of their own movement, their inclination towards an end is purely internal. Aristotle finds grounds in this analogy to conclude that all things seek an end. Notably, he associates this final cause with the 'always or for the most part' acquisition of form.

Ockham, by contrast, does not follow Aristotle's analogy, replacing it instead with an account of how artificial things are ontologically not any different from natural things.

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[110]Ockham does allow that voluntary agents can be obstructed as well (*Quodl.* IV.1 [trans. 248]), but of course unlike natural agents the identity of impediment can only be determined relative to the final cause that has been freely chosen.

[111]Ibid. (trans. 249).

He rejects anything that would suggest that freedom and necessity can be thought of in the same way. In particular, teleology cannot govern them equally. For Ockham, this entails rejecting any similarity based on the acquisition of form as well. Voluntary agents, who have final causes in the robust sense, are only capable of local motion and thus cannot produce the influx of a form in anything. Natural agents, by contrast, do possess this ability insofar as they are capable of generation and decay, as well as alteration. But such natural activity is not governed by final causality, except possibly in the thin sense of 'limit'. Hence, Ockham effectively dissociates final and formal causality from each other and assigns them to his two very different scientific paradigms.

Rather than envisioning natural and voluntary agency as analogically similar, perhaps Ockham is working with a different analogy altogether. As demonstrated in the last chapter, Ockham argues that will and intellect, while referring to the same intellectual soul in reality, have completely different nominal definitions because their activities—willing and thinking—are incommensurate. These activities are distinguished above all by the fact that the former is done freely, the latter, naturally. For Ockham this means that the will is capable of willing anything whatsoever, regardless of what is going on outside itself. That is why it can, for example, nill God even while experiencing union with Him. The intellect, conversely, is as determined by external conditions as the will is unconstrained by them. Given a thinking being and some object within sufficient proximity, there will be a cognition of that object in the being's intellect. The reason that the cognition will be of that particular object and not any other is that the object is first in a chain of efficient causality leading to its actual cognition.

These two powers of the intellectual soul thus offer a kind of analogy for the radical difference between voluntary and natural agency. The voluntary agent, who possesses such an intellectual soul, presents a microcosm of the universe as a whole: just as a voluntary agent as a partial cause of some natural event introduces contingency into that event, so too the will as a partial cause of voluntary agency introduces contingency into that agency.[112] Apart from the influence of the voluntary agent, the natural causes act with the same necessity as that of the intellect. As Ockham says, "A fire that is close to a piece of wood heats it,"[113] i.e., just by virtue of the two natures being in sufficient proximity. The process of cognition especially resembles natural agents' local motion, since on Ockham's rendition they are both sufficiently explicable in terms of efficient causality apart from formal or final causality.

One of the arguments on behalf of teleology that Ockham attributes to Aristotle runs as follows: "The principle in speculative matters is like the end in practical matters; but in speculative matters the principles are the necessary causes of the conclusion, and not conversely; therefore in practical matters the end is the cause of those things which are done for the end."[114] By now it should not come as a surprise to find Ockham qualifying this argument with the comment, "we should note that there is no similarity as regards the intellect and will, nor does the Philosopher make mention of this."[115] For

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[112]*Quodl.* II.2 (trans. 99).

[113]Ibid.

[114]*Brev. Phys.* II.6 (trans. 36).

[115]Ibid.

Ockham, the relationship between will and intellect can only stand analogically for the radical *difference* between voluntary and natural agents. Hence, there can be no comparison of the will's ends with the intellect's principles that bridges the chasm the separates voluntary and natural agency on the subject of final causality.

CONCLUSION

OCKHAMIST TELEOLOGY

Reconsidering the Genealogy

We are now in a place to reconsider the genealogy of teleology sketched out in the introduction. Recall the contrast that was outlined there between Aristotle's historical account of the progress of scientific inquiry as found in the first book of the *Metaphysics* and the very different account of modernity.[1] While Aristotle sees scientific progress as moving from a primitive, mechanistic account of the universe to a more full-bodied explanation typified by his notion of final causality, the modernist genealogy plays this movement out in reverse, through a four-stage process: at first stage, Aristotle finds all of nature to be intrinsically directed towards certain ends in a manner analogous to intentional, deliberative human activity. In the second stage, the theologians of the Middle Ages understand all ends, including natural ones, to be extrinsically fixed by a transcendent Creator. This is then rejected as useless theological speculation during the third stage, the Scientific Revolution. The promise of a fully scientific, fully mechanistic explanation of the world is fulfilled at the fourth stage with the arrival of Darwin's theory of evolution by natural selection, which pushes the last vestiges of teleology into extinction.

What happens to this conventional picture once Ockham enters it? First of all, the examination of Ockham's teleology in the chapters above has revealed that his is markedly *not* the traditional medieval view—to the degree that Ockham's own position is

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[1] See pp. 1-13 above.

often developed as a direct *refutation* of it. With his argument that one can only know by faith that all creatures have an end, Ockham confines the characteristically 'medieval' relativization of Aristotle's distinction between art and nature to the realm of revealed theology alone. However, this does not mean that the only adjustment to the genealogy required is to simply stretch out the conventional picture of the Middle Ages along a continuum running from 'most Aristotelian' to 'most theologized' so that Ockham may be located at the one extreme. As we have seen, the price Ockham willingly pays for (re-)asserting the distinction between art and nature is to burn the Aristotelian bridge over which final causality can be carried from the one to the other. Thus, quite unlike Aristotle, Ockham's account of natural activity avoids the assumption of final causes almost entirely. It relies instead on the necessity of natural things to act in the ways they do in the circumstances they are in.

That the recognition of Ockham's contribution to teleology demands a more subtle account of the Middle Ages, therefore, is clear enough. But the consequences of such an alteration extend well beyond the borders of this second chapter of the genealogy of teleology. If a single, unified view cannot be set up to cover the entire medieval period, then neither can it be simply knocked down by Descartes et al. The similarities between Ockham's determinist account of nature and the anti-teleological sentiments that can be found in the early modern period demonstrate as much. It will not suffice, however, to simply mark Ockham as a transitional figure, a prophet of the upheavals to come—thereby maintaining the conventional narrative movement from the second to the third chapter of the genealogy. As Alfred Freddoso notes in the introduction to the

English translation of Ockham's *Quodlibetal Questions*, "[E]ven though Ockham is both revered and reviled as a revolutionary, his own ostensible agenda was a distinctly conservative one for an early fourteenth-century thinker: to synthesize Aristotle's philosophy with the Catholic faith."[2] One ought to accept instead the more radical suggestion that basing the distinction between medieval and early modern science on their respective 'yes' and 'no' to teleology is untenable.[3] If something called the Scientific Revolution can still be identified in the course of Western history, then its undermining of the Aristotelian programme must have been accomplished by other means.

But Ockham does not only upset the modernist genealogy—he forces the revaluation of Aristotle's teleological account of teleology as well. In the *Physics*, Aristotle asks, "why should not nature work, not for the sake of something, nor because it is better so, but just as the sky rains, not in order to make the corn grow, but of necessity?"[4] For Ockham this sort of objection functions more as a rhetorical question than one that can be given a satisfactory response. This entails that the mechanistic account of natural phenomena given by the earliest philosophers was more correct and less incomplete than Aristotle allows. Hence, peering back from over Ockham's shoulder, as it were, the march from Democritus to Aristotle does not look as confidently

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[2]*Quodl.* (trans. xx).

[3]This is corroborated by the evidence of pro-teleological views throughout the early modern period (see Osler, "Whose Ends?" 151-68).

[4]*Physics* II.8 198b16-18 (trans. Barnes, 339).

progressive as Aristotle portrays it in the first book of the *Metaphysics*.[5]

The description of Ockham's approach to teleology put forward in the present work is thus intended as a step towards a more refined understanding of the concept, one that disturbs the preexisting genealogies precisely because there is no fixed correlation between teleological explanation and scientific progress. This allows one to question the kind of modernist ideology identified in the introduction, which assumes that secularization on the one hand and humanity's mastery over nature on the other are goals and necessary consequences of scientific investigation. It also creates the space to draw upon historical resources to articulate a better understanding of how teleology mediates between 'objective' science and 'value-laden' disciplines like metaphysics and theology. By way of closing, then, I would like to explore the possibility that Ockham might be helpful in this regard.

Scientific Heuristics

In the introduction it was mentioned that contemporary philosophers of biology continue to debate whether teleological concepts may in fact have some continuing relevance in scientific explanation.[6] In his opening essay to an anthology on the topic, John Buller notes that the problem with teleology for scientific explanation is that it seems to terminate in one of two unacceptable conclusions. On the one hand, it appears

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[5]This is not to suggest that Ockham himself would have seen things this way, but that *we* can using Ockham as a vantage-point. Ockham's discussion of the ancients in the *Brevis Summa Libri Physicorum*, for example, only involves cautioning how to interpret Aristotle's refutation of them.

[6]See p. 16 (esp. n. 44) above.

to make some yet-to-be-achieved goal the cause of something that already exists. This seems to reverse the proper temporal order between cause and effect. The only way of stepping around this problem of 'backwards' causation would seem to be, on the other hand, to assert that an *intention* to achieve the goal was present in the thing from the very beginning. But this means attributing some sort of intelligence to purely natural forces—to say, to use one of Buller's examples, that sweat glands 'know' about lowering the animal's body temperature.[7]

Notably, Ockham recognizes just these sorts of problems with natural teleology. He argues that final causes properly speaking do not 'move' anything because movers are by definition efficient causes. This is a tacit admission on his part that the cause of movement cannot exist posterior to the movement itself. Ockham then explicitly links final causality to intention by defining it as that which is efficaciously desired by an agent. (This is the reason why it is able to be a cause without existing; an agent can desire something without it actually existing.) It is precisely because Ockham does not wish to attribute this kind of rational intention to natural agents that he denies that natural agents can be considered to have final causes. Hence, Ockham's view of natural necessity is remarkably free from the problem of 'backwards' causation as well as the sort of vitalism that plagued philosophers during the first century of evolutionary theory.[8]

The contemporary scientific explanation of natural phenomena by means of a

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[7]David J. Buller, "Natural Teleology," in *Function, Selection, and Design*, ed. idem, 3-7.

[8]Ernst Mayr cites Bergson, Whitehead, and Polanyi as some of the more recent casualties ("The Idea of Teleology," *Journal of the History of Ideas* 53 [1992]: 120).

series of 'blind', purposeless causes (x led to y, y led to z) does not present a difficulty from an Ockhamist point of view, therefore. The question that remains is, to what extent can something like purpose still be detected in those phenomena? As Robert Brandom notes, there are some things for which a mechanistic explanation does not seem wholly satisfactory. The "more one might want" amounts to some sort of teleological explanation identifying what the mechanism is *for*. While we do not expect this kind of explanation of purely inorganic processes, we often want to know something of the sort within living systems.[9] We do not ask what purpose a deposit of rock serves, for example, but we do ask what a heart is for.

Teleology thus continues to be a live philosophical issue in the biological analysis of *function*. Indeed, it has been called "arguably the most important foundational issue in philosophy of biology,"[10] and quite possibly the type of explanation which distinguishes biology from all the other sciences. The question of what the function of a particular biological trait is can be expressed as, 'why is this trait here?' This formulation is deliberately ambiguous; its meaning can be taken as either, 'what is it for?' or 'how did it get here?' What the difference between these two interpretations amounts to is the subject of current debate in philosophy of biology. On the one hand, some have argued that biological function does not explain the presence of a trait; all that is required is an

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[9]Robert N. Brandom, "Biological Teleology: Questions and Explanations," in *Nature's Purposes*, ed. Allen, Bekoff, and Lauder, 79.

[10]Allen, Bekoff, and Lauder, eds., *Nature's Purposes*, 2.

account of whatever the trait actually does, or is capable of doing.[11] On the other hand, others have argued that a trait's function does in some sense explain its presence. According to Larry Wright's influential definition,

> 'The function of *X* is *Z*' means
> (a) *X* is there because it does *Z*,
> (b) *Z* is a consequence (or result) of *X*'s being there.[12]

The significance of (a) is that the analysis of function must not only explain what the trait does, but in doing so it must also explain how it got there.[13] In short, in the case of natural organisms,[14] the explanation of *X*'s being there is that it has been naturally selected to do *Z*. Wright labels his definition "etiological" because it refers to the causal history of a trait in order to identify its current function.

These two accounts have been called 'Causal Role' (CR) and 'Selected Effect' (SE) functions, respectively.[15] The primary criticism of CR-functions is that they do not incorporate any notion of normativity, which creates two problems. First, it cannot single

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[11]Robert Cummins, "Functional Analysis," in *Function, Selection, and Design*, ed. Buller, 57-83.

[12]Larry Wright, "Functions," in *Function, Selection, and Design*, ed. Buller, 48.

[13] Buller notes, "Instead of construing *Z* itself as a cause of *X* (which would reinstate the problem of backward causation that appeared to plague Aristotle's metaphysics), Wright's analysis takes the fact that *Z* is an effect of *X* to be among the (antecedent) efficient causes of *X*, and thus provides an efficient causal explanation of the existence of *X* in terms of its producing *Z*" ("Natural Teleology," 12; I have substituted variables for consistency).

[14]Wright's definition also applies to machines, in which case the explanation of X's being there involves its design by a human being.

[15]Ron Amundson and George V. Lauder, "Function without Purpose: The Uses of Causal Role Function in Evolutionary Biology," in *Nature's Purposes*, ed. Allen, Bekoff, and Lauder, 336.

out 'the' primary function of a trait, since anything whatsoever a trait does or can do counts as a function. The fact that a heart makes certain noises is just as much a function as the fact that it pumps blood. Second, it cannot say when a trait is malfunctioning, only that it does not possess that function at that time. This would seem to make no discernible difference of a heart's not pumping blood and a kidney's not pumping blood. According to SE-functions, by contrast, natural selection builds in the normativity: the primary and proper function of a trait is the one it has been selected for. Creatures with hearts survived and reproduced because they were capable of pumping blood well, not because they produced certain sounds.[16]

Critics of the SE-approach, on the other hand, make a number of counter-arguments.[17] In reply to the objections raised against CR-functions, they argue that natural selection does not build in the sort of normativity that is being sought, anyway. All that an organism's evolutionary history reveals is the survival value (or fitness) of a particular trait, not its proper function. These two things do not necessarily match up; as Marjorie Grene points out, the evolutionary process does not always favour healthy organisms whose traits are fully functional. The unhealthy are the 'fit' members of *homo sapiens* during times of war, since they are the ones who survive to reproduce.[18] Hence, the evolution of function is not the straight-forward process that SE-functions

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[16]Denis Walsh and André Ariew, "A Taxonomy of Functions," in *Function, Selection, and Design*, ed. Buller, 259-60.

[17]See especially Robert Cummins, "Neo-Teleology," in *Functions*, ed. idem, Ariew, and Perlman, 157-72.

[18]Marjorie Grene, "Explanation and Evolution," in *The Understanding of Nature*, 224.

presuppose. Quite often some feature incidental to the function a trait has been selected for gets co-opted for an entirely different function, thus altering its selection history drastically.[19] For example, the feathers of ancestral birds were probably selected for insulation before they were selected for flight.[20] Finally, defenders also argue that CR-functions, which do not appeal to the selection history of an organism or the contribution of a trait to the organism's survival, continue to be foundational to the research programs of various subdisciplines within evolutionary biology, such as functional anatomy and morphology.[21]

One can say provisionally, then, that 'what is it for?' and 'how did it get here?' are two separate questions, to which CR-functions and SE-functions offer separate answers—at least at first blush.[22] Thus, contemporary philosophy of biology admits of two types of teleological inquiry: in Grene's terminology, "instrumental" and "developmental" teleology.[23] As Grene convincingly argues, neither type requires backwards causation (or, for that matter, intentionality). The explanation of instrumental teleology amounts to no more than an account of the mechanism, i.e., the series of

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[19]Stephen Jay Gould has labeled these 'exaptations' (see Stephen Jay Gould and Elizabeth Vrba, "Exaptation—A Missing Term in the Science of Form," in *Nature's Purposes*, ed. Allen, Bekoff, and Lauder, 523).

[20]Ibid., 525.

[21]Amundson and Lauder, "Function without Purpose," 335-69.

[22]Part of the debate, of course, is the degree to which CR- and SE-functions overlap (see, e.g., Walsh and Ariew, "A Taxonomy of Functions," 257-79).

[23]Grene, "Explanation and Evolution," 211.

efficient causes, that makes the system work.[24] Developmental teleology, i.e., the fact that organisms seem as though they were designed for some end, is also explained by a mechanism: the principle of natural selection acting on random genetic mutations and recombinations. Hence, the adaptation of organisms does not happen because of some yet-to-be-realized goal, but out of straightforward, 'blind,' causally determined processes.[25]

In both instrumental and developmental teleology, therefore, the *appearance* of a final cause is explained strictly in terms of natural necessity. As Grene puts it, "The end provides the *explanandum*, not the *explanans*."[26] This is the point at which an Ockhamist approach to teleology might be relevant. It was suggested in the second chapter above that the inconsistencies in Ockham's work over the appropriateness of teleology within natural philosophy could be alleviated somewhat by employing his distinction between end as goal and as limit. Where Ockham seems to agree that natural agents have final causes, this should be interpreted in the 'thin' sense that their activity necessarily produces some particular result.[27] Such a distinction could be fruitful in this context. One might say that the 'end' characteristic of instrumental and developmental teleology has the appearance of a purpose or goal, but the explanation of such an end always treats it simply as a 'limit'. Hence, the ambiguity Ockham identifies in the term 'end' can be

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[24]Ibid., 213.

[25]Ibid., 220.

[26]Ibid., 213; emphasis added.

[27]See "End as Limit or Goal," in chap. 2, pp. 114-17 above.

appropriated to endorse what Grene calls the *heuristic use* of teleology.[28] Thinking about the 'goal' of a biological process helps the scientist to determine what it is that requires an explanation, even though the explanation itself will be purely mechanistic.

Science and Theology

If an Ockhamist teleology can be put into broad agreement with the philosophical issues of contemporary biology as suggested, then it also holds out promise for thinking critically about the problem that evolutionary theory poses for the relationship between science and theology. The advantages of an Ockhamist approach to these questions can be exemplified by contrasting it with the more popular Thomistic alternative. It has been suggested, for example, that the means by which to reconcile evolution with the Christian faith is by means of the Thomistic notion of secondary causality.[29] The idea is that God employs (or perhaps delegates) the principles of natural selection, genetic mutation, etc. to accomplish his divine purposes. Of course, Ockham's version of theology includes the very same concept; he agrees that all creatures exercise only secondary causality, and that God is the primary and total cause of everything. From the standpoint of faith, there is no disagreement between the Thomist and the Ockhamist on whether God is the final cause of creation. However, they diverge over whether or not God can be proven to be such by reason alone, and, as a result, their characterization of the mechanisms of evolution

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[28]Ibid., 211.

[29]Armand Maurer argues that Darwin himself appealed to this notion in the early editions of the *Origin of Species* ("Darwin, Thomists, and Secondary Causality," *Review of Metaphysics* 57 [2004]: 491-514).

would differ considerably.

Because the Thomist perspective accepts the argument that divine purposes can indeed be discerned within the natural order itself, without recourse to revelation, the randomness of genetic variation presents a potentially insurmountable problem. As biologists point out, genetic mutations do not serve any purpose; they are not accomplished for the sake of the health of the organism—in fact, the vast majority of mutations are terminative. For the Thomist, however, this lack of an end is the very definition of chance in the Aristotelian sense. Hence, randomness renders genetic variation outside the realm of intelligibility. Although Aquinas argued that chance is only outside the intention of natural, secondary causality, and not outside the realm of divine Providence (i.e., primary causality), this caveat still leaves the process of evolution as something that exhibits no inherent rationality that humans are capable of comprehending. Hence, the fact that the entire organic *order* rests on a base of Aristotelian chance seems counterintuitive from a Thomistic perspective, and threatens the entire natural theological project of discerning God's activity in creation. It is therefore not surprising to find some contemporary Thomists rejecting the concept of randomness and arguing instead that evolution is purposive.[30]

An Ockhamist approach, by contrast, should be able to fully accept the biologist's

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[30]For example, Cardinal Christoph Schönborn has stirred up controversy with the recent publication of an op-ed piece for the *New York Times* in which he argues, "Evolution in the sense of common ancestry might be true, but evolution in the neo-Darwinian sense —an unguided, unplanned process of random variation and natural selection—is not. Any system of thought that denies or seeks to explain away the overwhelming evidence for design in biology is ideology, not science" ("Finding Design in Nature," *New York Times*, 7 July 2005, A23).

description of genetic variation as random. For Ockham, the intelligibility of nature does not rest on its purposiveness but on the fact that it happens by necessity. Hence, there is no contradiction in affirming order of a process that does not have final causes (in the 'goal' sense). Since, by Ockham's definition, chance always happens as the result of the intervention of voluntary agency, genetic mutations would simply not fall under this category. Being random means they lack final causes, but they still have efficient causes which are necessary and thus comprehensible. The Ockhamist would therefore characterize the evolutionary process as completely determined by the given set of natural causes acting in a given set of circumstances. And this is more or less what the evolutionary theorist says as well. For instance: "The theory of natural selection, . . . insofar as it explains changes in populations on this planet, explains in a classically causal fashion; it does not ascribe population change to chance. Indeed, 'natural selection' is simply shorthand for the fact that from given environmental conditions (including, of course, internal environment) certain changes in population distribution necessarily follow."[31]

Of course, this means, as Ockham himself noted, that the project of natural theology cannot be sustained. We will not find divine purposes in evolution without the light of revelation. From a Thomistic perspective, this may seem to amount to little more than surrender: theology just accepts its irrelevance to a secularized worldview. However, this would be to misunderstand the Ockhamist approach to the relationship of science and faith simply because it does not share the same goals as the Thomist

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[31]Marjorie Grene, "On the Nature of Natural Necessity," in *The Understanding of Nature*, 231.

approach. While Thomist theology takes the ends one discovers in nature and assigns them to a divine Agent, Ockhamist theology takes the necessity one finds in nature and situates it within a larger horizon of contingency. By faith one knows that the primary cause of the universe is God, who is totally free. One is therefore able to affirm simultaneously that the world is completely determined by natural causes, and hence fully open to examination by the scientist, and also that the world could have been other than it is.

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