

ON DOCTRINE AND DISCIPLINE: THE CONIMBRICENSES ON THE BEGINNING OF *POSTERIOR ANALYTICS*

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Although the philosophy of education as a discipline has only “recently” become a field of scholarly interest, the questions raised by those engaged in this research were hotly contested topics in ancient times. Among these questions were those that once entangled Plato with sophists such as Gorgias, Meno, and Protagoras, who objected to the existence of truth (and virtue), its knowability, and hence the ability of men to communicate knowledge to each other. Plato thought these questions so important that he felt compelled to solve them by resorting to the theory of reminiscence. In his dialogue *Meno*, Plato clearly rejects the possibility that human beings are able to find some truth that they do not already know, for it would be impossible for them to recognize it if they had not previously received the notion of what that truth is.¹

This theory of learning had repercussions for Plato’s idea of teaching, as reminiscence was a process that took place entirely within someone’s soul. There was no room in his theory for the possibility of communicating, that is,

1 *Meno* 70a and ff.

transmitting, the truth from a learned man to an ignorant one, or – one might say – from a teacher to a student. Consequently, the famous metaphor that Plato adopted for his theory of teaching was that of *maieutic* (midwifery),² for Socrates claimed to follow his mother's job, as it was through the act of questioning that students would be able to give birth to clear notions from within themselves.

The process of learning was that of going beyond the reflection of the truth in the material, and so developing an erroneous world, and reaching the world of ideas that someone's soul has contemplated before entering a body. Similarly, the process of teaching was intended to clean someone's notions from the burden of the sensitive and reputable accidents that prevented them from shining bright to the mind's eye.

Aristotle's theory of knowledge was different, for he thought that the senses necessarily played a vital and positive role in human knowledge. However, as Aristotle himself shared a common suspicion regarding the deceitfulness of senses, he could avoid the risk of skepticism and relativism only by stating that the intellect had an active role in the process of knowing. As knowledge was about universals, and universals could only be attained by the intellect, knowing truth stood in the appropriate process that connected sensitive perception with abstract reasoning.³ Moreover, the kind of knowledge that is more linked to truth, which Aristotle calls "science," in contrast with opinion and rhetoric, required this abstract reasoning to be conducted according to certain rules that could only grant the certainty of the conclusions drawn. These rules were set up by logic, which was broadly un-

2 *Theaet.* 149a and ff.

3 See IRWIN 1988, 4.

derstood as the “art of reasoning.” Syllogisms and their modalities dwelled at the core of logic, but it is important to note that, according to Aristotle, concepts and terms followed sensorial experience, which was essential to learning not just as a chance for remembering but as an indispensable conveyer of species and phantasms for the intellect to work on. Clearly, the role of senses and experience was at odds with Plato’s reminiscence, as it was with Aristotle’s famous statement that human minds are like blank slates. Therefore, any learning was to be considered brand new. If this was the basic theory of Aristotle’s concept of learning, his theory of teaching seems to be less clear. Did the “novelty” that Aristotle considered an essential quality of learning affect his theory of teaching? Was it possible for truth to be communicated and taught as well as learned? Despite being scattered in several books of Aristotle, the answers to these questions, which are also the core questions of the philosophy of education, are to be found in a book, part of his logic teachings, entitled *Posterior Analytics*, where Aristotle deals with the rules and structure of scientific reasoning, or – to put it another way – of deductive demonstrations.

This of course does not mean that Aristotle held that only science could be transmitted between human beings, for arts and opinions were things that men usually taught one another too. The thief taught others how to steal. An orator taught his techniques to aspirant lawyers, politicians, rhetoricians. None of these arts necessarily dealt with truth, for the latter focused on convincing other people, and the former on practical skills. But insofar as dianoethical virtues were superior to any other ethical virtues, so the knowledge that was supposed to deal with truth was considered superior to any other form of knowledge. Therefore, the problem of education and teaching was

most clearly dealt with by the logic inherent to the process of learning scientific knowledge.

Given the role of senses and experience in triggering the process of learning, one might expect that the major function of Aristotle's teacher was to provide uttered or written signs to enable his students to form proper phantasms for their intellects to begin the process of knowledge. Indeed, this was Aristotle's theory, one that many commentators, Scholastics included, would later agree upon. Clearly, teaching did not mean causing knowledge efficiently in somebody else, for this would have meant transferring the powers of a creator, or—in Plato's words—of a demiurge, to human beings. So, the power of teaching was that of helping, guiding, supporting someone else's process of reasoning correctly, a process that could only happen by following the rules of logic. But, keeping Aristotle's criticism of Plato's theory of reminiscence in mind, a question might then be raised about this, for if rules of logic were themselves mostly subjects of teaching (logic was an art, in fact), there seemed to be some very general logical principles that human beings needed to reason at all. They worked as the software that allows a computer to work. What were these principles? And how could they be learned? Were they themselves teachable?

These questions, which, according to some scholars, entrapped Aristotle in a paradox, place the problem of teaching at the core of his discussion about demonstration.⁴ Going through the structure of demonstrations, and the process by which human beings make use of induction and deduction in order to produce their knowledge of reality, meant inquiring into what and how people could teach each other. In fact, the process of learning could evid-

4 See IRWIN 1988, 6; AYDEDE 1998.

ently happen in two distinct ways, whether someone was discovering things and proceeding in learning by himself, or whether he was led by somebody else's teaching. And the more first principles were considered as a result of natural assent by men because of their evidence, the less essential was the teacher's role in the process of learning. Finally, if human beings were supposed to agree naturally on self-evident propositions such as first principles, something had to be explained about the concept of "natural," for the process of learning could not be based on some innatism echoing Plato's theory, a thing that Aristotle had openly denied.

I will explain Aristotle's argument later on. For now, it suffices to state that his distinctions regarding the structure of precognitions, premises, self-evident propositions, and principles were more detailed than the words he devoted to describing the process of assenting to their evidence. This nuanced and sometimes scattered depiction of what is going on when someone happens to "learn" first principles eventually originated a cornucopia of interpretations among Aristotle's commentators, from Philoponus to the last of the late Scholastics deep into the seventeenth century.⁵

Two models—Saint Augustine and Thomas Aquinas—affirmed two different traditions in Christian philosophy.⁶ Although it might seem a minor problem if compared with the disputes on other aspects of logic, the question of whether a man can be said to be the teacher of someone else stood at the point of divergence for two different theological paradigms.

In his *De magistro* (On the teacher), notably neglected by Scholastic logic commentaries, Augustine denied the possibility that man could be called the

5 See PHILOPONUS 2008.

6 On the historiographical meaning and limits of this statement, see GILSON 2010.

teacher of anybody else. Based on his philosophy of language, and particularly on his theory of signs, Augustine's denial echoed Plato's reminiscence: if no human being could cause knowledge in somebody else, because signs are not efficient causes of knowledge, then nobody could teach anything, properly speaking. What a teacher was supposed to do was nothing other than providing physical signs (gestures, uttered words) that a student would reproduce in his inner self, requiring the activity of the intellect for enlightenment to be understood from a conceptual point of view, thus triggering the process of learning.⁷ "Noli foras ire, in te ipsum redi. In interiore homine habitat veritas" (Don't wish to go outside, turn back into yourself. Inside men lives truth), said Augustine.⁸

The truth that inhabited in the inner self was of course nothing but God himself. Augustine solved the problem of reminiscence (and the theory of metempsychosis it implied) by introducing God the Creator in the inner man as the light that turns on human knowledge.⁹

As an implication, the process of *inventio* (discovery)—which would later be so crucial for rhetoric, logic, and finally scientific knowledge between the Middle Ages and the early modern period—was basically the only and true way through which man can learn.¹⁰ Legitimated by nothing less than its mirroring in God, the primacy of discovery over any other learning process required only a clear and specific pedagogy, which Plato had called maieutic, and Hermes Trismegistus had profiled in his *Pimander* as a dialogical progressive inner illumination, which the students owed basically to their own

7 *De magistro* 14, 45.

8 *De vera religione* 39, 72. Augustine refers to the same concept in *De magistro* 11, 38.

9 *De magistro* 14, 46.

10 DUCCI 1995, 28.

intellectual growth.

We know that a variety of Augustinisms spread at the University of Paris during the time of Aquinas. Étienne Gilson made it clear that one of Aquinas's targets was the successful blend of Platonizing Augustine with Arabic "intellectualisms," such as those of Avicenna and Averroes.¹¹ One of the topics where one can more clearly find Aquinas's divergence from Augustine is the question of the teacher, which Aquinas dealt with in *De veritate* 11 and, consistent with this place, in several other works.

In short, Aquinas's dilemma concerned how to both deny any efficient causality in the transmission of knowledge from the teacher to students and to save this transmission as actually happening. Aquinas's solution was the concept of "manuductio" (*manuduction*), by which he meant that the teaching of a teacher played the role of a guide for students to use their phantasy power (*phantasia*) in order to form the proper phantasms that would be abstracted and offered to the passive intellect in the shape of *species intelligibiles*.¹² Guiding was far more than what Augustine would concede to the act of teaching. Aquinas was able to insert this concept within an Aristotelian theory of knowledge. Nonetheless, the role of *inventio*, though somehow weakened, persisted, as Aquinas's conclusion was that man could only be "improperly" said to be the teacher of another, as the "proper" and true teacher of men was God himself.¹³

11 See GILSON 2010, 8.

12 See AQUINAS 1970 *Qu. de ver.*, q. 11, a. 1. Aquinas puts forward the following example about how human teaching properly works: "Sicut igitur medicus dicitur causare sanitatem in infirmo natura operante, ita etiam homo dicitur causare scientiam in alio operatione rationis naturalis illius, et hoc est docere; unde unus homo alium docere dicitur et eius esse magister" (*ibid.*, 351,335-340).

13 AQUINAS 1970 *Qu. de ver.*, q. 11, a. 1, 351-352,353-362: "Huiusmodi autem rationis lumen quo principia huiusmodi nobis sunt nota, est nobis a Deo inditum quasi quaedam simi-

Scholastics continued to debate the question that Augustine and Aquinas had settled, often claiming to side in the dispute with one or the other but blurring the boundaries between these two distinct models. In this dispute, the disagreement between Henry of Ghent and Duns Scotus on intuitive cognition, habits, and species played a major role that would shape the Franciscan pro-Augustine tradition until the end of the sixteenth century.¹⁴

At that time, the Jesuits provided distinct interpretations of this topic, but many of them were largely recognized as blending the Scotist and Thomist arguments together, so as to establish what has been called an “eclectic” tradition. This was made possible by the fact that the Constitutions of the Society bound every Jesuit philosopher and theologian to follow Aquinas, though no detail was provided about what “Aquinas” actually meant. The margin left by this statement on the Constitutions for free interpretation led several Jesuits to take some theories from Scotus, with the excuse that Scotus was apparently in agreement with Aquinas in many cases.¹⁵ For the purposes of this chapter, however, these two traditions were quite distinct, and by emphasizing Aquinas’s doctrine, a Jesuit philosopher was able to show himself to be a strict follower of the Constitutions, with the assumption of being more attuned to the spirit of the Society than others.

This was probably the case with the *Cursus Conimbricensis*, a multi-volume philosophical textbook that the Jesuits of Coimbra published in the

litudō increatae veritatis in nobis resultans. Unde cum omnis doctrina humana efficaciam habere non possit nisi ex virtute illius luminis, constat quod solus Deus est qui interiorius et principaliter docet, sicut natura interiorius et principaliter sanat; nihilominus homo et sanare et docere proprie dicitur modo praedicto.”

14 See ASHWORTH 1974; ASHWORTH 1978; ASHWORTH 1988; LAGERLUND 2017. As for the Portuguese Scotist background in the sixteenth century, see LOPES 1967.

15 On Scotus’s theory of cognition and first principles, see *De doctrina* 1968; VOS 2006; and CROSS 2014.

hope of spreading it throughout the worldwide network of the Jesuit schools. Despite no author being mentioned on the titles of the volumes, we now know that Manuel de Goís (1543–1597) wrote and edited most parts of the commentaries, and after he died in 1598, Sebastião do Couto (1567–1639) produced the last volume of the series, devoted to Aristotle's *Dialectic* (1606).¹⁶

If a distinctive trait can be found in the acquisition and communication of science as detailed in Couto's commentary on the *Logic*, it is in the consequences he draws from his rejection of Plato's theory of reminiscence and all its medieval derivatives.¹⁷ This rejection was not infrequent in Scholastic commentaries, but Couto radicalized the impact of the novelty and social roots of scientific knowledge in a way that nobody else had done before. Knowing was a natural disposition of human beings, but in such a way that nothing pertaining to knowledge was either infused or active in them unless a teacher intervened. My point here is that this intervention, though not causing knowledge efficiently, was necessary even in the case of *inventio*, the process by which somebody was supposed to learn something solely by himself. The role of the teacher was not intended to merely ignite the process of learning (i.e., knowing) but also to assist it by communicating those logical rules without which the allegedly most human of the acts, that is, knowing, could not be naturally possible. Moreover, by emphasizing both the distinction between the intellect (meant as the faculty of knowing discursively) and habits, and the fact that habits can only be acquired and are by no means innate, Couto argues that men's attitude toward making progress in sciences can be implemented only through the external act of teaching.

16 See DE CARVALHO 2010; CARVALHO 2015; also MARTINS 2006.

17 See CASALINI 2017, pp. 90-120.

Many of the arguments for this theory are to be found in Couto's commentary on the *Posterior Analytics*, the famous and much-debated first line of which reads: "Omnis doctrina & disciplina intellectiva ex antecedente cognitione fit" (All teaching, and all learning involving reasoning, derives from pre-existent knowledge).¹⁸

The *Posterior Analytics* deal with deductive demonstrations, the cornerstone of Aristotle's theory of scientific knowledge.¹⁹ Demonstrations are structures or patterns of reasoning, instruments that allow human beings to draw conclusions from given premises. When premises are certain in themselves, and the *medium* allows us to form a rigorous conclusion, that is a demonstrative syllogism, the building block of science. I will not get into the different Scholastic interpretations of this statement for now. Instead, it will suffice to say that science is just one kind among the discursive doctrines and disciplines—the dialectical and rhetorical arts are other kinds to which the statement can also be applied.

According to most Scholastic philosophers, this statement had to be interpreted as opposing Plato's theory of reminiscence, which implied that learning and knowing was just like remembering the knowledge we had before bathing in the Lethe River. Nothing was new, in the metempsychosis world of Plato. This theory had to be rejected by Scholastic Christian philosophy (though reminiscence survived in some other Christian traditions, one of which could be traced back to Saint Augustine and was reaffirmed in the fifteenth century by Marsilio Ficino, for example).

Based on Aristotle's statement in his *On Soul* that human possible intel-

¹⁸ I will refer here to the first edition of Couto's *Logic* as COUTO 1606 *In dialecticam*.

¹⁹ Among the vast literature on Aristotle's logical doctrines, I will mention here APOSTLE 1981; FERREJOHN 1988; BOLTON 1990; and WIANS 2006.

lect was like a blank slate, Scholastic philosophers argued that the knowledge a man could attain in life was entirely new, and it could not be attained without the intervention of senses (which was another of Aristotle's sentences). As senses were necessary but deceptive, Aristotle had to combine their intervention with the intellectual cognition that was the only function of the mind that could grant certitude and truth.

Therefore, the problem posed by the beginning of the *Posterior Analytics* is as follows: If correct reasoning is based on the certainty of the premises, and premises lack that medium that experience provides for the discourse, how can man know them, without admitting that their truth is infused in human souls and so having to concede to the reminiscence theory? In short, how could the idea that every form of knowledge was entirely new be combined with the fact that every knowledge derives from a previous cognition?

The Conimbricenses face two objections to their claim that any discursive science is a form of teaching (*doctrina*) and learning (*disciplina*).²⁰ The first objection is that a science learned through one's own invention is discursive; but it can be neither *doctrina* (which proceeds from a teacher), nor *disciplina* (indeed, the term "student" is predicated only with respect to a teacher). Moreover, being a *disciplina* and being discursive seems contradictory, for discursive means deriving from an antecedent. But the antecedent is either in the teacher or in the pupil:

The first case is false, because the teacher's science does not cause *per se* the student's science. This is because discourse is a movement that must derive from a potency. Therefore, one should find both cognitions [*utramque notitiam*] in one and the same potency. The second case is false, because those who enter the

20 COUTO 1606 *In dialecticam, In Post. An., I, c. 1, Explanatio.*

school are completely ignorant.²¹

If one opposes this by claiming that students get some antecedent cognition by the teacher from which they themselves derive a discourse by inference, then he should admit that this antecedent cognition itself is derived from teaching and learning, for it is derived from the teacher.

In the *Explanation* of Aristotle's incipit to the *Posterior Analytics*, the Conimbricenses say that, according to Aristotle, there are some things that we need to know before science can start working by demonstration.

Aristotle's argument is as follows:

Every intellectual teaching and learning derives from a previous cognition;

But science, which is a conclusion acquired by means of demonstration, is an intellectual form of teaching and learning;

Therefore, science must derive from an antecedent cognition.

What are these things to be pre-known? In the Scholastic commentaries on *Aristotle's Logic*, it was commonly conceded that any kind of cognition that precedes another one can be called precognition. The very basic precognitions that stand at the origins of deductive demonstrations pertain to elements of propositions or their conjunction in a proposition. The Conimbricenses, for instance, accept precognitions to be those of the subject, the predicate (but in the sense of the first quality of a subject, its *passio*), and the principle, which is a self-evident proposition.²² And a difference is added on whether one knows these elements as terms (mere linguistic knowledge) or

²¹ *Ibid.*, I, c. 1, q. 3, a. 1.

²² *Ibid.*, I, c. 1, q. 3, a. 2 and a. 4.

their quiddity. Scholastics usually distinguish between the intended objects of cognition (the three elements listed above) and the content of that cognition, which is usually parted in *quid sit* (what is that?) and *quod sit* or *an sit* (does it exist? Or: Is that true?)²³

Strictly speaking, though coming after the cognition of the elements, the pre-cognition of the self-evident propositions (*propositiones per se notae*) is pivotal to the beginning of reasoning. According to the rules of medieval logic, the evidence of this kind of proposition stands in the fact they lack any medium, that is, they are immediate, and they can be approved by anyone as soon as he understands the meaning of their elements. There was a debate among Scholastic scholars over how many of these kinds of sentences existed, and particularly on the kinds and structures of the most important of them in terms of epistemology (i.e., the principles).

The most accepted distinctions about principles derived from the following: that principles can be either *incomplexa* (simple things) or *complexa* (propositions). For what concerns the *complexa*, they are the most important kind of self-evident propositions. They lack any medium, are immediate, and can be divided according to several criteria, the most general of which is whether a principle is *first* and *communissimum* (regards every science) or *proprium* (pertains to one or some sciences). Principles were also divided into axioms (*axiomata* or *dignitates*) and suppositions. These suppositions are propositions that are stated by a teacher when teaching science: they can be *petitiones* (statements) or definitions (which do not affirm anything).

According to the Conimbricenses, Aristotle provides only negative definitions for “principles”: (a) principles are propositions lacking the middle

²³ *Ibid.*, I, c. 1, q. 3, a. 1 and a. 2.

term (*medio vacante*), and (b) principles are those (propositions) that are impossible to demonstrate.

Definition (a) means that principles are propositions *per se nota*, which the Conimbricenses admit as existing. Propositions of such a kind are those that can be known through their *sole* terms. To specify this, the Conimbricenses point out that, in order to be *per se nota*, a proposition needs to lack any *a priori* middle term (*medium*) both *in essendo* and *in cognoscendo*, and to have such terms that the intellect immediately gives its assent to the proposition after having understood them.

The Conimbricenses emphasize the concept of “a priori” because they believe—following Albert the Great—that a demonstration *a posteriori* can be provided for some propositions of this kind.²⁴

Propositions *per se nota* are divided into: (1) *secundum se* (in themselves), and (2) *secundum se et quoad nos*. The former lacks the medium but can be demonstrated by us (by pretending a feigned medium). The latter lacks the medium both *in essendo* and *in cognoscendo*.

The emphasis on the perfect understanding of terms that a proposition requires to be *per se nota* does not refer to terms as formal concepts or words (*voces*). It refers to terms as the signified thing. Indeed, in order to know whether a formal proposition is true or not, one needs to understand whether the signified thing is or not, as knowing comes first of things. In conclusion, the act of assenting to *per se notae* propositions is immediate (without medium) and intuitive (*intuitive cognoscuntur*).

Kinds of *per se notae* propositions are:

²⁴ *Ibid.*, I, c. 1, q. 2, a. 1. The following paragraphs are based on this very same place.

A proposition in which the predicate pertains to the essence of the subject is *per se nota secundum se*, but not all of those propositions are *per se notae quoad nos*. Examples of this kind are: “Angel is spiritual,” and “man is corporal.”

A proposition in which the first passion (*passio*) of a subject is predicated is metaphysically *per se nota secundum se*, but not *quoad nos*. In physics, it is not *nota even secundum se*.

A negative proposition, one of whose terms is subsumed under a different predicate, is *per se nota secundum se* but not *quoad nos*. Example.: “Homo non est linea.”

Every identical proposition is *per se nota* in both cases. “One thing can either be or not.”

A proposition that predicate the essential definition of a subject, or a part of it, or the first passion of the entire definition, is *per se nota* in both cases.

A negative proposition, whose terms are different, is *per se nota* in both cases. Ex.: “Substance is not quantity,” “God is not first matter.”

A disjunctive proposition that implies contradictory terms is *per se nota*. Ex.: “Man is either white or not.”

The Conimbricenses devote the comment of chapter 8 “De principiis” to the question of whether there might be some principles that can be demonstrated. They deny this possibility, as the light of terms (*lumen terminorum*) darkens any chance for demonstration. Yet, some kinds of demonstrations are not excluded (*propter quid in diverso genere causae, ad impossibile*).²⁵

To those who claim that Aristotle himself, after denying any demonstrability of principles, adds a clause that some principles might be not

²⁵ *Ibid.*, I, c. 8, q. 3, a. 1, a. 2, a. 3, and a. 4.

demonstrable *secundum quid*, they reply that—if a principle is not demonstrable for a discipline, but demonstrable for another one—that principle is to be held as simply demonstrable.

Principles can be divided into common (*communia*) and peculiar (*propria*) principles, according to whether they pertain to many sciences or just one.

Among the most common principles are the following:

It is impossible that one thing can be said to be and not be at the same time;

It is necessary to affirm or deny that thing is.

According to Aristotle, principle 1 is not demonstrable, but principle 2 is (through demonstration *ad impossibilem*). Therefore, for a metaphysician, it is possible to demonstrate a principle through deduction *ad impossibile*.

How are principles perceived? Through *discourse*? What does intuition mean? To answer these questions, one needs to take Couto's definition of habits into account. According to the explanation of the species of quality, the habitus is a quality that disposes a subject and that is difficult to remove from it. Such are the habitual virtues and sciences. Disposition is slightly different, for it can easily be removed as it stands as the act of virtue and science.²⁶ The concept of "habitus" is manifold:

First, it is the act of having something that stands between the owner and the owned thing. (In *Met.* 5, chapter 20, Aristotle provides several examples for this, such as the *praedicamentum* [category], which means the act of having endowed equipment.)

A quality acquired through some of our acts, which inclines one to those

²⁶ *Ibid.*, I, c. 2, *Explanatio*.

same acts. Aristotle calls this a power (*potentia*) acquired by middle acts.

In the loosest sense, the quality of the first species.

Two are the habitus of the practical intellect: prudence and art. In the speculative intellect, there are three habitus that are certain and evident—intellect, wisdom, and science. Other habitus are neither certain, nor evident: opinion, belief (*fides humana*), and surmise (*suspicio*):

Intellect is the habit of principles (habits being different from the intellect itself);

Wisdom is the cognition of things through the noblest causes;

Science can be divided into *quia*, *propter quid*, and *utraque*.

Three traditions are in conflict on the perception of first principles. The first one holds that the intellect does not need any superadded habitus to perceive the most common and evident of the principles (though it needs them to get the less common and evident). The second one holds that the intellect needs habits, but it does not acquire them over time. Habits are infused in the intellect as soon as it is created. The third tradition is the right one, for it holds that habits are needed to be acquired by the intellect over time (*paulatim comparari assueverat*). Therefore, habits are not innate, because, if that were the case, the intellect would not originally be a blank slate, that is, a pure potency. Moreover, *habitus principiorum* differ from intellect: indeed, when a habitus is acquired, the intellect performs more easily the act of knowing, and/or the act of assenting to the principles. The cognition (*notitia*) of first principles—even one received through induction and experiment—is not discursive.

The Conimbricenses offer several explanations for this. The first is

drawn by Dionysius Areopagite, who held that divine wisdom had created the chain of beings in such a way as the lower being shared his best operations with the higher in rank. Therefore, since human beings' best highest natural cognition is that of principles, this cognition works in the same way as the cognitive operation of the angels, which is not discursive.

Moreover, in order that a discourse be true, it is necessary that the antecedent cognition be a cause by itself (*per se*) and *ratio asserendi conclusioni*. But, as the experiment is necessary only to exclude the danger (*formidine*) of error for the intellect to judge, only the *lumen intellectus, et perspectio terminorum* is the absolute and true *ratio assentiendi*.

Furthermore, when a cognition is the *ratio assentiendi* of a conclusion, the intellect understands the truth of that conclusion as dependent *a priori* by it. On the contrary, when the intellect assents to the principle that has been perfectly understood, it understands its truth as independent and absolute, that is, it understands the principle as a principle. Therefore, the experiment is not *ratio assentiendi*.

Finally, induction is a true discourse when its antecedent is the main cause, and contains the reason that moves one to assent to its consequences, but this is not the case of the principle.

The distinctive trait of principles as understood by the intellect is their evidence. Evidence is different from certainty, for certainty pertains to an object that does not plainly appear. Evidence is twofold: it pertains either to the object or to cognition. For what concerns the object, evidence consists in such powerful clarity and perspicuity that the thing itself seems to be thrown before (*obiicit*) our eyes. For what concerns cognition, evidence consists in the

clarity of the penetrating perception of the thing, which some theologians deny as being necessary for science.

Certainty (*certitudo*) is threefold, for it can pertain to the object, the cognition, or the knower. The first one stands in the thing as its necessity. The third one is the firm adherence of the intellect to the thing as true. The second one is the infallibility of a cognition. It derives from evidence.²⁷ Evidence is of either the object or the cognition, that is, it stands either in the thing itself as a power of the thing, or in the clarity of the perception that penetrates the thing. The perception of (and assent to) the evidence of principles consists of these steps:

Simple apprehension of the terms (which is not specific, but necessary to understand any kind of proposition);

Clear perception of the terms (i.e., *penetratio*);

Connecting the terms in the form of a proposition;

Approbation—i.e., judgment—of the entire proposition, which is also called *notitia principii*.

According to the Conimbricenses, the *notitia*, even if compared to the induction and experiment that somebody claims to pertain to 2 and 4, is not discursive.

It is in the light of this intricate lexicon that one can understand the meaning of Couto's main statement about how science can be learned by human beings, a statement that allows one to assess how experience and teaching are important for any soul to start the process of learning. Couto says:

Human souls—which God creates and simultaneously infuses in a body—are

²⁷ *Ibid.*, I, c. 1, q. 1, a. 3.

like blank slates lacking any habit or *species*. Souls acquire the habitus of sciences over time, especially by perceiving principles, for the intellect has a great affinity with them, and drawing conclusions either *per se*, and by souls' own experiment, or by means of the work and instruction of the teacher.²⁸

Bearing in mind Couto's criticism of Plato's reminiscence, as stated in *Meno*, it is easy to grasp the importance of sensorial perception and experience for learning. But, as I will try to show later, the most common and ordinary way by which a human being learns derives from teaching. When a student learns, he learns through signs that the teacher provides. But the teacher does not infuse species directly into the pupil's mind. He provides signs, which the student pre-knows only in a universal and confused way. Thanks to the teacher, he learns the parts that make those signs. From the perspective of "logic," the student already knows the meaning of the simple terms, but the teacher helps him by teaching which of them needs to be connected to make a statement, and which ones need to be separated in order to make a denial.

In this sense, Couto's interpretation of Aristotle's first line *Omnia doctrina et disciplina intellectiva ex antecedente cognitione fit* must be understood in light of that "social" chain to which every single act of knowledge can be traced, even those derived from *invention* that the early modern period would symbolize as the progressive steps of the *advancement of learning*, to previous acts of learning and teaching made by teachers and students in the past, and finally back to the source of human knowledge, the first teacher of everyone:

²⁸ *Ibid.*, I, c. 1, q. 1, a. 2, 417: "[Conclusio (...) sit], animum humanum simul a Deo creari, & in corpus infundi, esseque a prima origine quasi nudam tabulam, omni habitu, specique destitutum. Denique vero progressu temporis acquirere scientiarum habitus, ea potissimum via, quam tradidit Aristoteles in hoc opere, videlicet percipiendo prius principia, quae maiorem habent cum lumine intellectus cognationem, et ex illis deducendo concludendo aut per se, et proprio experimento, aut opera, industriaque magistri, de quibus inter solvenda argumenta iam dicemus."

Adam, whose knowledge was infused, that is, directly caused by God, so he did not have to learn or invent anything.²⁹

According to the Conimbricenses, the acquisition of science could take place in three ways, the first of which was in a prelapsarian or miraculous way: a direct infusion of science in a human mind. This was the case of Adam, as we saw above. The other two ways are that of learning it from the teacher, or by means of one's own invention.

Clearly, the last two ways derive from someone's experience, as they need the intervention of senses in order to happen. But the litmus test for our thesis stands in the number of chances invention really has to happen in life. Insofar as it has few or no chances, then it would be demonstrated that, according to the Conimbricenses, only the transmission of knowledge is somehow the cause (efficient cause) for brand new knowledge.

Unfortunately, the chapter from the *Posterior Analytics* that could offer the possibility for treating this issue in detail (2, 19) was omitted in Couto's commentary. As it was the last chapter in the second and last book, it barely drew the attention of teachers of logic who needed to complete the course in the span of one year and so usually focused on the first book of the *Posterior Analytics* before jumping to *Topics* and *Sophistical Refutations*. This means that evidence for my point must be found conjecturally either in the scattered references that occur in Couto's text or by parallelisms with other Jesuit commentaries that shared certain similarities with Couto.

A major example for the limitation of the power of discovery with respect to the transmission of knowledge by a teacher was offered by Paolo Valla (or Vallius, Vallio, 1561–1622), an outstanding professor at the Roman

²⁹ *Ibid.*, I, c. 1, q. 3, a. 2.

College whose commentary on Aristotle's *Logic* offers more than a few parallelisms with the Conimbricenses.³⁰ Valla states that the teaching way is *facilior et magis ordinarius* (more common). Valla's crucial point about how the intellect can get knowledge of first principles is based on the distinction about true habits of the intellect. These are threefold, the first kind being that of opinion and topic syllogism, the second one being that of science, and the third one that of "intellect": *Tertius est habitus principiorum necessariorum, et immediatorum, et nullus habitus est certior Scientia praeter intellectum.*³¹

Intellect as a habit is clearly different from opinion because it cannot be false, and it is different from science because it neither has any cause, nor can it be known by reasoning. As intellect is a different cognition from opinion and science, Valla calls it "principium, et principium principii," that is, the cognition by which we know the very same first propositions, also called principles. Knowing mediate and immediate principles involves a different habit, for the former needs reasoning while the latter needs the intellect, as described above. Where does this habit of the intellect as "principium principii" come from? Is it innate or not? Valla's answer to this question has striking similarities with Locke's first chapter of *An Essay concerning Human Understanding*: "Cognition of the immediate principles is not knowledge, but it is cognition of another kind, and such cognition is not native to us, but we acquire it anew, although nature provides us with the senses that are the means through which such cognition must be acquired."³² Valla as an empiricist? The quotation above might lead some to that conclusion. And, of course,

30 I will quote from VALLA 1622 *Logica*.

31 VALLA 1622 *Logica, Post. An.*, II, c. 11, text 27, *Annotatio*.

32 *Ibid.*, 337: "Cognitio principiorum immediatorum non est scientia, sed cognitio alterius rationis, et huiusmodi cognitio non habetur a natura, sed de novo acquiritur, quamvis a natura habeamus sensus, quibus mediis talis cognitio acquiri debet."

the presence of Valla's commentary on *Logic* at Oxford and some signs of Locke's reading Jesuit manuals of *Logic* might be used to support this opinion.³³ Moreover, William Wallace's edition of Galileo Galilei's treatises on precognitions (*De praecognitionibus* and *Praecognitis*) and demonstration (*De demonstratione*) showed Galilei's work to be almost a direct copy of Valla's *Logic*.³⁴

However, as far as the current topic is concerned, it is clear that sensorial perception serves as a means for the intellect as the habit of principles. But a principle is a proposition. More precisely, it is a self-evident proposition whose meaning can be grasped without any middle term and when the meaning of its parts is understood. So, the problem is whether a man can know such a proposition by himself or not. In other terms, whether a man can reach the meaning of the parts of the proposition (and their connection) by himself or whether he requires somebody else to explain the parts and connections of that proposition to him in detail.

In order to reply to the issue raised by Saint Augustine in his *De magistro*, the Conimbricenses radicalize Aquinas's thought on the teacher by pointing out that the beginning of knowledge stands in the act of the teacher who provides precise definitions and examples that allow students to form appropriate phantasms and learn precisely what a concept means.³⁵ In order to do that, students need to know to *confuse* the terms that the teacher will explain in detail. For example, students know confusedly that man means human

33 See LOCKE 1996. In particular, chapters 2 ("No Innate Principles in the Mind") and 3 ("No Innate Practical Principles") offer similar arguments to those of Valla.

34 GALILEI 1987.

35 Aquinas's ambiguity on the role of the original *inventio* at the beginning of the process of learning is particularly evident in his commentary on the *Posterior Analytics*. See AQUINAS 1970 *Sent. Post.*, 235-240.

nature, but they do not know in detail the parts that constitute it. They might know simple terms, but the teacher shows which of and how to combine them in order to make an assertion or negation.

The primary task of a teacher seems to be that of providing definitions. According to the Conimbricenses, definitions precede demonstrations. Therefore, in order to ignite reasoning, that is, demonstrating, an act of definition is required. But confused knowledge of the terms (*voces*) is insufficient, as the Conimbricenses require the knowledge of the signified thing as a proper *notitia terminorum*. This knowledge can be obtained by means of a teacher, as it seems fair to say that a confused knowledge of the terms cannot ignite a discourse/demonstration. How could principles and propositions *per se notae* be grasped by a confused knowledge of the terms from which they are formed? Couto describes the process for assenting to principles. The perception of (and assent to) the evidence of principles consists of these steps:

Simple apprehension of the terms (which is not specific, but necessary to understand any kind of proposition);

Clear perception of the terms (i.e., *penetratio*);

Connecting the terms in the form of a proposition;

Approbation—i.e., judgment—of the entire proposition, which is also called *notitia principii*.

If 2 and 3 are absent, a principle cannot be assented to by anyone. But 2 and 3, as we saw above, stand in the act of being taught. So, teaching stands at the very origin of the act of reasoning, that is, of knowing.

Now, one needs to remember that, according to the Scholastic tradition, the ontological structure of every act of knowledge is twofold: we judge/assent to/know principles/demonstrations/things by means of a concurrence between an act of knowing and a habit connected to it. The act stands in the present process of the mind that focuses on an object in order to know it, while the habit is the attitude strictly connected to that very act that facilitates it (and every possible future reply to it). When Couto needs to deal with Augustine's objection that nobody learns anything *de novo* (as new), because one should learn it through senses (which are often deceitful) or by means of a teacher (but in this case, either he already knows what the teacher is saying, or he cannot recognize what he means), he follows Aquinas's argument as developed in *De veritate* 11.

Indeed, Couto concedes that the teacher does not infuse any knowledge directly into the student's mind: neither the intellect light (*lumen intellectus*) nor the species. The teacher provides sentences (*pronunciata*); the student re-creates in his mind the sensible signs by which the student can form the same cognition that the teacher wants him to learn. Moreover, Couto states that this is not repugnant to Augustine's theory. To reply to Augustine's possible objections on the knowability of a teacher's signs by students, Couto makes some points that are remarkable if compared to his doctrine of self-evident propositions:

The answer is that those signs are known at a universal level and vaguely, but they are declared by the teacher in a particular way and explicitly. For example, the disciple knows vaguely that homo means human nature, but he learns from the teacher in detail the particulars that constitute the human being. Similarly, as the meaning of simple terms are known, the teacher makes it clearer which of such terms must be connected with each other by affirmation, and which separ-

ated by negation.³⁶

Now, one might notice that the example provided here by Couto is part (often the subject) of many self-evident propositions. The large majority of examples that Couto provides for self-evident propositions includes human nature. This lets us conclude that even the case of self-evident propositions requires a teacher (somebody else) to let one begin to learn and know. Self-evident propositions (*secundum se et quoad nos*) actually require a learned man to let us recognize them and so trigger the process of science.

The role of the teacher is given even more emphasis when Couto comes to the question of the relationship between habits of science and the knower (are they innate or acquired?). As mentioned earlier, every act of learning or acting comes with its proper habit. One might expect that the habit corresponding to the act of knowing the first principles, as these are self-evident and immediate, should be innate, for it is required to foster the very primary act of learning. Couto reports that some theologians have followed what he calls “Plato’s dream” instead of Aristotle by admitting this kind of habit as innate in every man. The list of them included Durandus and (perhaps quite surprisingly) the Thomist Domingo de Soto.³⁷

On the contrary, other, more recent theologians (with whom Couto agrees) firmly believe that even this kind of habit is acquired (*superadditus*) as most certain. Of course, they also state that, contrary to Soto’s claims, this the-

³⁶ See COUTO 1606 *In dialecticam, In Post. An.*, I, c. 1, q. 1, a. 3, 419-420: “Respondetur illa signa esse nota in universali, et in confuso, a Magistro vero particulariter, et explicite declarari, verbi gratia, novit discipulus quod homo significat humanam naturam confuse, a magistro vero particulatim discit, quibus ea partibus constet. Item sunt nota quatenus significant simplices terminis, et magister ulterius declarant, qui nam illorum terminorum coniungi debeant inter se per affirmationem qui separari per negationem.”

³⁷ *Ibid.*, I, c. 1, q. 1, a. 4.

ory was held by Aquinas.

Couto's argument is drawn from the necessary distinction between potency and habit: Why – he asks – should there be the habit for assenting more promptly and easily to principles if our intellect has the perfect potency for doing it by nature? But experience tells us that the more acquainted we become with things, the more easily we judge, do, and make use of them. If habits were innate, then it should already be easy for us to judge, do, and make use of such things. Criticizing Caietanus on this point, Couto concludes that according to both Aquinas and “truth,” habits are acquired, for they proceed from experience and – ultimately – senses:

Indeed, Saint Thomas, in that passage where he proves that the habits of the principles arise from our grasping of species through the senses, species by which we elicit their acts, does not mean that the habits proceed immediately from sensible species but he deduces that habits are acquired since the species necessary for their use are acquired. But this explanation (of Cajetan's) conflicts with the truth, since habit is not simply necessary to elicit an act, but it is an ability gotten by the exercise of acts, and it inclines towards similar acts by those things by which the habit has arisen; therefore the habits of principles do not precede but follow acts through the principles, and they incline towards other similar ones, and so they are not at all produced by phantasms.³⁸

In conclusion, neither the act nor its habit is inherent in a human being. One might fairly conclude that, as far as senses and experiences trigger know-

38 *Ibid.*, I, c. 1, q. 2, a. 3, 438: “Nam D. Thomas eo loco cum probat habitus principiorum generari ex eo, quod per senses haurimus species, quibus eorum actus elicimus, non vult habitus ex ipsis speciebus sensibilibus immediate prodire, sed colligit habitus comparari, quia comparantur species ad eorum usum necessariae. Veritati autem adversatur haec expositio [Caietani], quoniam habitus non est simpliciter necessarius ad elicendum actum, sed est facilitas actuum exercitio comparata, inclinaturque ad actus similes iis, quibus genitus est, ergo principiorum habitus non praecedunt, sed sequuntur actus per principia, ad aliosque similes inclinant, ac proinde a phantasmatis minime producuntur.”

ledge, the act of teaching stands at the beginning of the whole process. For the teacher knows precisely and distinctly the meaning of the terms and propositions that, in their self-evidence, allows one to start reasoning—an act that inevitably leads toward learning and science. What about *inventio*, then? What about discovery?

I found fewer references to *inventio* in the Coimbran commentary on the *Posterior Analytics*, and nothing connected to the topic I am dealing with. If we follow Couto's argument as we have done so far, a question might suffice in order to arrive at his theory: How can one discover by himself unless he gets the meaning of the first principles? It seems that students know these principles in a confused and generic manner: only a teacher lets them properly understand them. The act of teaching—one might say: paradoxically—precedes the act of learning.

A final question is left for those of us who are interested in the history of the *Cursus Conimbricensis*: What about the consistency of Couto's theory with the same topic as dealt with in other volumes? Of course, many references occur about principles, propositions, and so on. But I found just one place where the topic of the teacher is explicitly quoted. It is in Goís's commentary *On Soul*, where he reproduces Aquinas's theory by stating that the science that is in the teacher is partly the same as and partly different from the one that is in the student, for teaching works as a *manuductio* for students to form phantasms, and so on.

This does not allow us to draw a certain conclusion on the question I have raised. But a curious closing statement on this issue by Goís himself appears as an intriguing mystery that one should seek to solve in future: after saying that teaching works far differently from efficiently causing effects,

Góis adds “We have discussed this matter more fully at the beginning, in the Book of the Posterior Analytics.”³⁹

There is not a commentary on logic before Couto’s. Was Goís quoting somebody else, or was he planning to publish his own logic? There is evidence for both hypotheses. Moreover, it might be questioned that a philosopher would intervene to edit his manuscripts when setting them up for publication. This means that cross-references made by one and the same author to others of his own works stood at the level of manuscripts he could easily handle when writing. If that were the case, it would not be problematic to admit that Góis’s manuscript version of *De anima* was quoting another manuscript, out of any concern for the gap between manuscripts and (forthcoming) publications.

In any case, consistencies can be found between Couto and Góis regarding what pertains to the preliminary role of experience and the necessity of the teacher’s intervention for triggering the process of learning in students. In his commentary on *Physics*, Góis points out that there are four modes by which a notion can be grasped by the human intellect, each one resulting from a combination of features such as distinct/confuse and actual/potential. As the confused notion of a thing stands as the middle term between ignorance and distinct knowledge, the ontogenetic process of learning starts from potential confused knowledge and ends with actual distinct knowledge. To describe it from another point of view, the potential confused knowledge of the parts always precedes the potential confused knowledge of the whole, being parts and whole taken as referring respectively to less common and most common natures. Indeed, the only case when the knowledge of the whole

39 Goís 1598 *De anima*, II, c. 7, q. 7, a. 3.

precedes the one of its parts is when the whole is close to senses (as in the perception process of the ear, for example), but the most common natures are far from senses. Therefore, this case does not apply to potential confused knowledge, which Goís holds as beginning with the less common natures.⁴⁰

Looking into Goís's manuscripts will surely advance our knowledge of the *Cursus Conimbricensis* as a complex and fascinating masterpiece of teamwork.

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⁴⁰ See Goís 1592 *Phys.*, I, c. 1, q. 2, a. 5; and I, c. 1, q. 3, a. 5.

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