

*Summary of Talk Given at the Conference
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**Material Souls, Material Thoughts?
Some Medieval Views on Rational Operations in Non-Rational Animals**

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Introductory Remarks

Medieval theories of animal cognition by and large start from the assumption that only human animals are endowed with intellect (*intellectus*) and reason (*ratio*). That is, according to the standard medieval view, dogs, cats, donkeys, and other nonhuman animals have souls, yet their souls are not immaterial intellectual souls but material sensory souls (including usually five external senses as well as a number of so-called internal senses, e.g., common sense, imagination, estimation, and memory). Consequently, they are incapable of engaging in rational operations such as concept formation, judging, reasoning, and thinking, for only the intellect has access to the realm of universals (or concepts) which are the building blocks of judgments, syllogisms, and thoughts.

Nevertheless, on various occasions medieval philosophers do note that in many cases nonhuman animals seem to judge (*iudicare*), to reason (*ratiocinari, sillogizari*), or to think (*cogitare*), too, insofar as their behaviour seems to be brought about by rational processes. In the following, an overview will be given of what six (later) medieval authors, namely Thomas Aquinas, Gregory of Rimini, Roger Bacon, Albertus Magnus, John Buridan, and Nicole Oresme, say on how there can be rational processes in non-rational animals, especially reasoning and thinking (note that ‘reasoning’ and ‘thinking’ are not necessarily synonymous here; rather, reasoning is taken to be some type of thinking; for more on that see Section III).

It will be argued that – from a systematical point of view – these authors can be divided into two groups holding rather different views concerning the question of whether non-rational animals are capable of reasoning. While the first group (including Aquinas, Gregory of Rimini, and Bacon) holds that what we find in nonhuman animals is only ‘quasi-reasoning’ or ‘as-if reasoning,’ the second group claims that nonhuman animals do in fact reason, yet less perfectly than human animals do.

Note that since this is just a summary of the talk given at Cambridge, the various views will only be summarised very briefly and no bibliographical references will be given except for references to the passages from primary sources found in the appendix at the end of this summary. A more detailed version of this paper is likely going to be published at some point in the future as part of the author’s thesis on later medieval theories of animal rationality.

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I. As-If Reasoning

As mentioned above, Thomas Aquinas, Gregory of Rimini, and Roger Bacon hold very similar views concerning nonhuman animal reasoning and thinking. Thomas Aquinas, for instance, refers to the famous case of ‘Chrysippus’ dog’ which chases an animal yet loses sight and comes to a fork with three paths. The point now is that in order to find the right path (taken by the prey), the dog sniffs at the first and the second path but then takes the third path *without* sniffing or ‘without inquiring’ (*non explorando*), as Aquinas puts it (see **Text 1** in the Appendix), that is, it seems as if it reasons ‘The prey took either A, B, or C, so if not A and if not B, then C’. However, Aquinas does not think that the dog is really applying a syllogism. Rather, the dog behaves only ‘as if using a disjunctive syllogism’ (*quasi utens sillogismo divisivo*). In fact, its behaviour is based on what Aquinas calls ‘natural inclination’ (*inclinatio naturalis*). Similarly, Gregory of Rimini states that the dog judges that the third path is to take and thus behaves ‘as if it reasons’ (see **Text 2**).

One of the most detailed medieval accounts of nonhuman animal reasoning is found in Roger Bacon. In his *Perspectiva* Bacon presents a whole range of examples which seem to show that bees, cats, wolves, and other animals reason and act on a means to end basis. Still, Bacon is keen to emphasise that their ‘thought’ (*cogitatio*) or ‘(mental) discourse’ (brought about by the so-called ‘*virtus cogitativa*,’ according to Bacon) only *resembles* actual syllogisms consisting of premisses and conclusions. It is only ‘as if they reason’ (*ac si arguerent*) (see **Text 3**). In fact, though, they gather various pieces of information ‘by natural industry and by natural instinct’ (*ex naturali industria et instinctu nature*). That is, Bacon, too, thinks that there is only quasi-reasoning in nonhuman animals.

So, in sum, Aquinas, Gregory, and Bacon suggest that there is a *difference in kind* between nonhuman and human animals, to put it in Darwinian terms. While only human beings are capable of reasoning by virtue of their intellect, nonhuman animals come to behave like they do by way of instinct, mainly, which, in a way, is *functionally equivalent*, one could say, since the dog, for instance, obviously succeeds in finding the right path yet without reasoning.

II. Imperfect Reasoning

In contrast to Aquinas, Gregory, and Bacon, authors of the second group (namely, Albertus Magnus, John Buridan, and Nicole Oresme) do suggest that there is not a difference in kind but a *difference in degree* if it comes to reasoning and thinking in nonhuman animals (at least in some species). Albertus Magnus, for example, claims that the so-called estimative power (a material power though!) of apes and pygmies is relatively better than the estimative power of other animals. Therefore, they are capable of engaging in ‘imperfect argumentation’ (*argumentatio imperfecta*) and ‘imperfect practical syllogisms’ (*imperfecti sillogismi operum*) (see **Text 4**). Their reasoning is imperfect because other than humans they cannot go beyond what is ‘here and now’ nor do they apply concepts, according to Albert.

John Buridan and Nicole Oresme also think that especially higher animals such as apes and dogs ‘reason and syllogise’ (*ratiocinantur et syllogizant*), yet they do not do this ‘as subtle and complete’ (*non ita subtiliter ac complete*) as humans (see **Texts 5 and 6**). It is important to note, though, that both Buridan and Oresme come to hold this view for other reasons than Albert. Whereas Albert does not question that nonhuman

and human animal souls differ in that only the latter are *immaterial*, Buridan and Oresme follow Alexander of Aphrodisias in claiming that the human intellectual soul is just as *material* a form as is the soul of a dog, a donkey, or an ape. Hence the difference between the cognitive operations of human and nonhuman animals originates from *material* differences. The souls of humans are ‘built’ in a more complex way, one could say, and thus are capable of performing comparatively complex cognitive operations. Still, like Albert they think that nonhuman animals reason (*ratiocinari*) and think (*discurrere*) although in a less perfect way if compared to humans (see **Text 6** in particular) and all three authors think that this is a question of *material* differences.

III. Objections and Conclusions

None of the authors discussed in this paper claims that nonhuman animals have *immaterial* souls. Moreover, all agree that the cognitive capacities of humans go beyond those of nonhuman animals. Yet, while a first group of authors thinks that this difference is a *difference in kind*, the second group takes it to be a *difference in degree*. That is to say, whereas Thomas Aquinas, Gregory of Rimini, and Roger Bacon think that nonhuman animals only pretend to reason, so to speak, or quasi-reason, Albertus Magnus, John Buridan, and Nicole Oresme claim that some animals do engage in rational operations, even though their reasoning is less perfect than the reasoning found in human animals.

An objection could be raised, though, with regard to the aspect of thinking. It seems rather uncontroversial to claim that reasoning is a type of thinking (as done in the introductory section). If this is accepted the systematical distinction drawn between the two groups of authors holds for thinking just like it applies to reasoning. Consequently, one would need to make a distinction between *quasi-thinking* and *thinking*. However, one might rightly say that not every kind of thinking is necessarily reasoning. Therefore, processes of thought could be found in nonhuman animals even according to the view of the first group. At least Bacon seems to explicitly allow for processes of thought in nonhuman animals as he speaks of them doing things on the basis of ‘cogitation’ (*cogitatio*) and ‘discourse’ (*decursus*) (see **Text 3**). As mentioned, this is brought about by a particular inner sense, namely the cogitative power. This, however, was rarely attributed to nonhuman animals, so Bacon’s view is an exception in this regard.

Appendix

Text [1]: Thomas Aquinas, *Summa theologiae* I-II, q. 13, a. 2 (ed. Leonina, 99f.)

“Et hoc etiam sensui manifestum videtur, apparent enim mirabiles sagacitates in operibus animalium, ut apum et araneorum et canum. Canis enim insequens cervum, si ad trivium venerit, odoratu quidem explorat an cervus per primam vel secundam viam transiverit, quod si invenerit non transisse, iam securus per tertiam viam incedit non explorando, quasi utens syllogismo divisivo, quo concludi posset cervum per illam viam incedere, ex quo non incedit per alias duas, cum non sint plures. (...) Et ex hoc contingit quod in operibus brutorum animalium apparent quaedam sagacitates, inquantum habent inclinationem naturalem ad quosdam ordinatissimos processus, utpote a summa arte ordinatos. Et propter hoc etiam quaedam animalia dicuntur prudentia vel sagacia, non quod in eis sit aliqua ratio vel electio. Quod ex hoc apparet, quod omnia quae sunt unius naturae, similiter operantur.”

Text [2]: Gregory of Rimini, *Lectura super I et II Sententiarum*, dist. 3, q. 1 (ed. Trapp & Marcolino, 305,9-14)

“Tertio, idem probatur ex experientia quae de canibus venaticis fertur, videlicet quod, cum ferram fugientem insequuntur, si ad bivium veniant, odorant unam viarum, in qua, si non percipiunt odorem fugientis, subito absque alterius viae odoratione per alteram pergunt. Quod non videtur aliunde contingere, nisi quia iudicant feram non transisse per illam quam odorati sunt, et ex hoc quasi arguentes iudicant transisse per aliam.”

Text [3]: Roger Bacon, *Perspectiva* II.3.9 (ed. Lindberg, 248,827-250,855)

“Sed per argumento, oportet considerare quod dispositio argumenti in figura et distinctio conclusionis a premissis non pertinent nisi ad animam rationalem. Sed quedam collectio plurium ad unum ex naturali industria et instinctu nature (que plura assimilantur premissis, et quod unum sit simile conclusioni, quia colligitur ex eis) bene potest reperiri apud bruta. [...] Atque vidi murilegum qui desideravit pisces natantes in magno vase lapideo, et cum non potuit propter aquam deprehendere eos, abstraxit clepsedram et deduxit aquam donec vas siccabatur, ut in sicco pisces reperiret; plura igitur opera hic concepit ut finem intentum haberet. Et apis facit omnes domos hexagonas, eligens unam de figuris replentibus locum, ne spatium vacuum inter domos relinquatur; et non vult spatium hoc ne mella vel pulli cadant extra vasa et pereant; propter igitur hunc finem qui assimulatur conclusioni, multa colligit in sua cogitatione que premissis simulantur. Et sic est de infinitis in quibus bruta animalia cogitant multa per ordinem respectu unius rei quam intendunt, ac si arguerent apud se conclusionem ex premissis. Sed decursum sue cogitationis non disponunt in modo et figura, nec ex deliberatione distinguunt ultima a primis. Nec percipiunt se huiusmodi discursum facere, quia ex solo instinctu naturali sic decurrit cogitatio eorum. Et hic decursus est similis argumento et sillogismo, et ideo auctores perspective vocant argumentum et sillogismum.”

Text [4]: Albertus Magnus, *De animalibus* XXI.1.3 (ed. Stadler, 1331,29-1332,8)

“(…) et in hoc cognoscitur symia melioris esse aestimationis quam aliud animal. Sed in omnibus hiis non movetur nisi ex fantasmate: et ideo frequenter errat sicut et alia animalia quia sicut diximus in antehabitis, ubi fantasticum intellectui non coniungitur, frequens incidit error: et est in talibus animalibus non sillogismus operis, sed argumentatio imperfecta. Et sicut in contemplativis entimema et exemplum sunt argumentationes imperfectae, quarum tamen imperfectio perficitur per reductionem ad sillogismum: ita in istis animalibus sunt imperfecti sillogismi operum qui non habent nisi fantasticam aestimationem de operabili vel appetibili et appetitum facientem impetum ad opus. Sed in hoc differentia est quod entimema procedit ex ea quae est sub universali prout est in pluribus vel in omnibus. Fantastica autem aestimatio non est nisi ex eo quod videtur tantum: et ideo frequenter decipitur sicut ex sophismate accidentis: quia non procedit nisi ex hiis quae hic et nunc videntur, reputans similiter fugienda vel persequenda quibus idem accidit accidens secundum hic et nunc. Inductionis autem aliquid videtur participare pigmeus in hoc quod experimenti parum participat secundum sillogismum operativum quem practicum Graeci vocant, sed perfecte non inducit, quando non progreditur usque ad universalis acceptionem. Exemplo autem haec animalia nullo modo utuntur: eo quod exemplum fieri non potest sine aliqua rationis collatione.”

Text [5]: John Buridan, *Quaestiones de anima*, Paris, Bibl. Nat., Cod. lat. 15888, f. 70ra
“In hac materia sunt tres opiniones magis famosae. Una fuit Alexandri, quod anima intellectiva humana est forma materialis, extensa et deducta de potentia materiae, generabilis et corruptibilis, ut est anima canis aut asini. Et dicebat hoc non debere negari propter magnam subtilitatem hominis vel eius ratiocinationem, quoniam hoc dicebat provenire ex nobilitate complexionis corporis humani vel ex nobilitate animae humanae super alias animas, sicut dicemus simiam <esse> ingeniosam super cetera animalia et quodammodo esse rationabilem, immo et canes et alia animalia ratiocinantur et syllogizant, quamvis non ita subtiliter ac complete sicut homo vel simia. Quod apparet, quia, si canis videt dominum suum et vult ire ad ipsum et in directa linea inveniat magnam foveam, non intrabit in illam, sed quaerit aliam viam, licet longiorem, quod non faceret, nisi ratiocinaretur et syllogizaret, quod non est bonum cadere in foveam et cetera.”

Text [6]: Nicole Oresme, *Expositio et quaestiones in Aristotelis De anima* III.4 (ed. Patar, 335,63-77)

“Et ideo videmus <quod> aliqua animalia imperfecta et modicae cognitionis nec discurrunt, sicut conchae marinae et talia huiusmodi. Et alia sunt perfectioris cognitionis, et alia adhuc perfectioris, et ita gradatim intantum quod aliqua videntur discurrere et habere notitias similes cognitionibus humanis, sicut sunt simiae [sic!] aut talia animalia; tamen adhuc quantum ad hoc homo superexcedit omnia alia animalia. [...] Unde, quia exterior figura quodammodo est signum dispositionis interiorum, ita de physiognomia: inde est quod in quibusdam illa animalia quae magis accedunt ad similitudinem hominis quantum ad figuram sunt maioris industriae, sicut dicebatur de simeis intantum quod videtur aliquibus quod, si possent loqui, ratiocinarentur sicut homines, quamvis tamen in quibusdam ita perfecte.”